September 16, 1957

Metal Buildings Find New Fields

RAILWAY AGE *weekly*

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"The thinking people of this nation today are increasingly aware of the fact that a strong and progressive railroad industry is one of the greatest assets to our economy. This affords the railroads—the one great mass transportation agency—a tremendous opportunity during the next decade when gross national product is expected to increase from $435 billion to more than $550 billion.

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JAMES M. SYMES, President
Pennsylvania Railroad Company

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Texaco Crater is now available in 1-lb. polyethylene bags —48 bags to the case—clean, convenient, economical. This is the same reliable product that has long been giving traction motor gears outstanding protection in all types of Diesel gear cases. But now—make-up servicing is so fast and easy,—just drop in bag and all.

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☆ ☆ ☆

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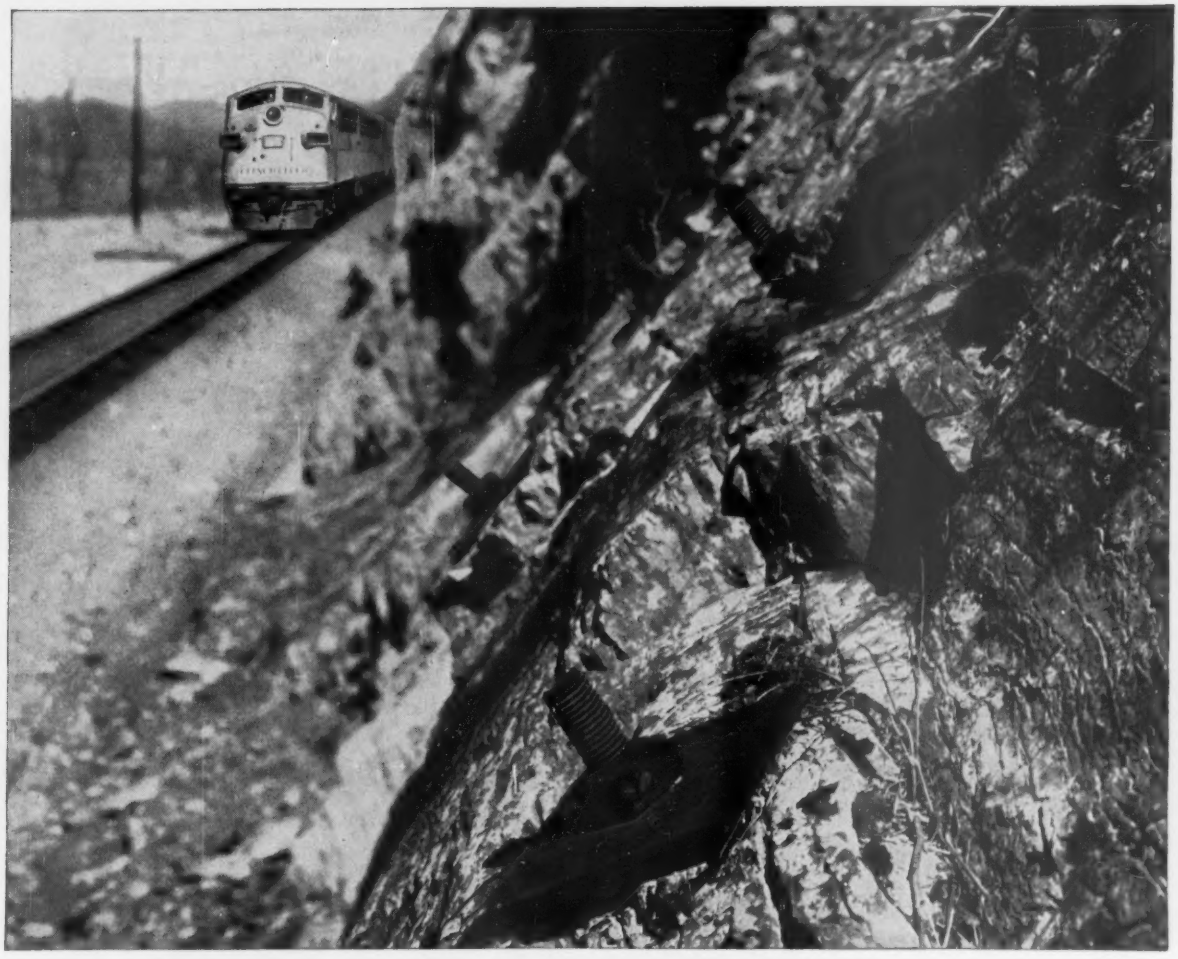


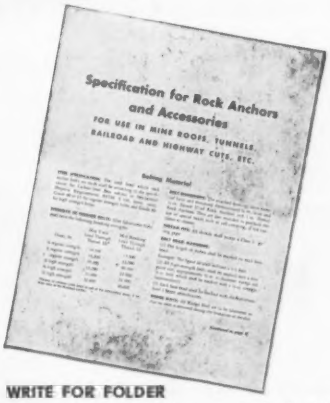
Rock Control on the Clinchfield

Recognizing the importance of protecting traffic from damage or delay due to rock slides, the Clinchfield Railroad Company is keeping rock under control at danger points by means of Bethlehem Rock Anchor Bolts. The illustration shows a typical installation in a rock bluff north of Kingsport, Tenn. The wedge-type bolts are 1 in. in diameter, and are 5 ft and 6 ft long. They are installed in drilled holes, and are used with 6-in. sq anchor plates.

Bethlehem Rock Anchor Bolts are ideal for keeping rock under control because of the effective way in which they bolt the rock formation. The bolts hold the rock in place, locking boulders to bedrock, or layers of rock to each other.

Slotted and Headed Anchor Bolts—Bethlehem Rock Anchor Bolts come in two types—a 1-in. diam slotted bolt, used with a steel wedge, and a ¾-in. diam headed bolt, used with an expansion shell.

If you have any question about anchor bolts, or how they should be installed, drop a line to the nearest Bethlehem office.



WRITE FOR FOLDER

We have an interesting technical folder on the specification for rock anchors and assemblies, including more than twenty detail drawings. Write today for your copy.

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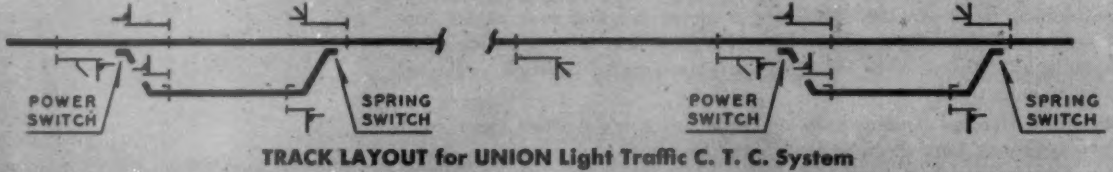
Here is a new low-cost C. T. C. system that can be installed at a cost comparable to automatic block signaling. It provides increased safety and all the basic functions of the more elaborate C. T. C. systems.

The new system complies with I. C. C. regulations and the A. A. R. Standard Code. It can be expanded readily to accommodate future changes in traffic.

We have prepared a comprehensive bulletin describing this system in detail. If you want to obtain a modern, efficient and flexible traffic control system at the lowest possible cost, write to our nearest district office. Ask for Bulletin No. 168.



TRACK LAYOUT for UNION Light Traffic C. T. C. System

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DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
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NEW YORK.....PITTSBURGH.....CHICAGO.....SAN FRANCISCO

RAILWAY AGE *weekly*

September 16, 1957 • Vol. 143, No. 12

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Passenger loss must be controlled ..... p. 9

Cold economic facts indicate that all New York Central services will suffer if the passenger deficit is not brought under control, says Ernest C. Nickerson, the road's vice-president—passenger sales and service. "We must adjust our passenger services to changing conditions . . . to what the public really needs and is willing to pay for."

PRR to drop transcontinental cars p.13

A decline in patronage of the road's sleeping car service to the Pacific coast has led to a decision to discontinue the service when the fall passenger timetables go into effect next month.

Canadian railroads ask higher rates p.13

The Canadian lines' latest request for an increase in freight rates, hearings on which will open September 24, asks that the remaining 4% in their 1956 application for a 15% boost be raised to 10%. The roads last year were granted two increases of 7% and 4% as measures of "interim relief," pending final determination of the 15% application.

'Prefabs' are practical p.31

And that's why railroads are using more of them all the time. With the variety of standardized shapes and accessories now on the market, a railroad's regular forces can put together while you wait just about any kind of a building management can ask for—from watchmen's shanties to photogenic passenger stations.

Cotton Belt main line is all CTC—here's why p.37

Adequate capacity for today's volume of high-speed freight traffic was secured on single track by equipping the entire line with CTC, keeping trains **moving** safely by signal indication.

Teamwork is the key to ASF's research p.41

With a test train and two research and development laboratories, this railway supply manufacturer has put into practice its research philosophy—whatever is good for the railway industry is good for those who supply it.

The Action Page—Rate-making theory must be changed p.82

If railroads are to remain in private ownership, the ICC policy in regulating rates will have to be modified. The initiative in getting a practical principle of rate-making adopted is clearly up to the railroads. The time to start is now.

Short and Significant

'Glued' rail joints are under test . . .

on a 1-mile section of the Delaware & Hudson, near Cobleskill,

900 MORE refrigerator cars
—all with HYATT HY-ROLL BEARINGS!

"This is why we've ordered 900 MORE refrigerator cars equipped with Roller Bearings"

says Jno. C. Rill, President, Fruit Growers Express

"Flavor is a fleeting thing," says Mr. Rill, "so our constant aim is to provide faster, more dependable transportation for perishables and concentrates. That's why, three years ago, we made our first major investment in roller bearing refrigerator cars. The results have proved so satisfactory that we have now ordered 900 more cars equipped with roller bearings." All 900 roller bearing refrigerator cars ordered by Fruit Growers Express are *100% Hyatt equipped*—another example of the high priority given Hyatt Hy-Roll Bearings in today's railroad modernization programs. Hyatt Bearings Division, General Motors Corporation, Harrison, N.J.

Another GM GENERAL MOTORS contribution to railroad prosperity

HYATT HY-ROLL BEARINGS
FOR NON-STOP FREIGHT

Week at a Glance CONT.

Current Statistics

Operating revenues, seven months	
1957	$6,106,484,249
1956	6,043,558,324
Operating expenses, seven months	
1957	$4,805,911,027
1956	4,691,148,995
Taxe, seven months	
1957	$627,112,171
1956	628,802,047
Net railway operating income, seven months	
1957	$518,790,232
1956	573,280,686
Net income estimated, seven months	
1957	$395,000,000
1956	447,000,000
Average price 20 railroad stocks	
September 10, 1957	82.10
September 11, 1956	96.39
Carloadings revenue freight	
Thirty-five weeks, 1957	24,284,746
Thirty-five weeks, 1956	25,025,546
Average daily freight car surplus	
Wk. ended Sept. 7, 1957	16,490
Wk. ended Sept. 8, 1956	3,907
Average daily freight car shortage	
Wk. ended Sept. 7, 1957	1,971
Wk. ended Sept. 8, 1956	8,708
Freight cars on order	
August 1, 1957	85,229
August 1, 1956	126,194
Freight cars delivered	
Seven months, 1957	59,136
Seven months, 1956	38,533

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N.Y. The binder is a resin plastic which is expected to eliminate the gap between rail sections under all climatic conditions, thus securing the effect of continuous welded rail. The new material is also under test on a Canadian road.

Airline suit appeal under way . . .

Rail arguments were heard at Washington last week by the U.S. Court of Appeals, District of Columbia, in the railroads' appeal for an injunction against special rates for troop movements. Countering position of airlines, who are suing railroads for $144.6 million in damages, railroad representatives held that passenger dealings with military are not subject to anti-trust laws because of Bulwinkle provisions of Interstate Commerce Act.

'Red Book' revised on power brakes . . .

Following approval by substantial margin of AAR member road votes, new rules on power brakes are now in effect (Railway Age, Aug. 12, p. 7). The title has been changed to "Rules for Inspection, Testing and Maintenance of Air Brake Equipment on Locomotives and Cars."

Mediators step in . . .

Labor disputes involving two western railroads and non-operating unions have come under jurisdiction of the National Mediation Board. In the first case mediators reentered the wage dispute case between the Chicago North Shore & Milwaukee and four non-op groups; wages are the major issue; a tentative strike date had been set for early on the morning of September 11. In the second case the deadlocked union shop dispute between the Santa Fe and 15 non-op unions went into mediation in an effort to avert a possible walkout (Railway Age, Sept. 9, p. 15).

Scored journals ruled off the rails . . .

Scrapping scored and gouged axles damaged by overheated bearings will be mandatory for all freight cars soon. AAR car-owner members have voted for this requirement along with another making magnetic-particle and ultrasonic testing mandatory for overheated axles even though no surface damage is apparent. Expense will fall on the line handling the car when the hot box occurs.

'Not going out of the locomotive business' . . .

a Fairbanks, Morse & Co. spokesman said in reply to published reports that F-M had temporarily halted locomotive production at Beloit, Wis. The company is currently finishing three orders, which will be delivered between now and early January; no firm orders have been received beyond that, but the company has "good prospects" for 1958 operations.

D&RGW's Roper yard . . .

is in Salt Lake City, Utah. A recent item in this column inadvertently placed it in Denver, Colo., an error which was brought to our attention by R. K. Bradford, Rio Grande vice-president.

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RAILWAY AGE
The Industry's Newsweekly

Passenger Loss Must Be Controlled

NYC's Nickerson says alternative is that all the railroad's services will suffer; passenger operations must be adjusted to what the public really needs and is willing to pay for.

Cold economic facts indicate that all New York Central services are bound to suffer if the passenger deficit is not brought under control.

So said Ernest C. Nickerson, NYC vice-president—passenger sales and service, in a speech before last week's White Sulphur Springs, W. Va., meeting of the Great Lakes Division of the National Association of Railroad and Utilities Commissioners.

It is obvious, Mr. Nickerson said, that "we must adjust our passenger services to changing conditions. This means discontinuance of little used trains and services, consolidation of main line trains and services to achieve maximum efficiency, and a constant effort to adjust all our services to what the public really needs and is willing to pay for.

"Many of the steps that we will have to take may not be popular," he warned, "but, if we are to preserve our ability to serve the public generally, they must be taken and made effective."

So far as the Central is concerned, Mr. Nickerson said, the passenger deficit is a real one. "A detailed study by competent people proved that, if the Central did not operate any passenger service, its savings in expense would be at least as much as the expense charged in the formula of the Interstate Commerce Commission. So, in our case, the passenger deficit is no phantom."

Basically, Mr. Nickerson told the meeting, a business manager has two foundations on which to base his decisions. First, he can look at the previous record and present situation; second, he must try, based on what he knows and can determine about tomorrow, to foresee the future. "Then, weighing these factors, he makes a decision which becomes tomorrow's action."

Applying this decision-making process to the NYC, Mr. Nickerson summarized the record—with emphasis on three specific periods: 1946 to 1951, 1952 to 1955, and the year 1956—then took a look into the future.

"Just prior to 1946," he said, "the Central made exhaustive studies to find out what the public wanted for postwar passenger equipment. . . . As a result of this program, the NYC invested approximately $168,000,000 in new equipment for its passenger service, including both cars and locomotives."

Substantial service revisions, in addition, were tried during the postwar period. "Despite improved equipment and service, however, traffic fell off heavily," Mr. Nickerson continued. "We tried to hold the line on service, hoping that new streamlined equipment and improved schedules would eventually reverse the trend. But by the end of 1948 it was clear that most of the decline in traffic was permanent in nature. Even more appalling was the tremendous jump in passenger service expenses which resulted from the first postwar rounds of wage increases. . . . In summary, the experience of the period from 1946 to 1951 was—we spent over $168,000,000 for modern equipment and our losses from passenger service increased over $24,000,000 per year."

In the second period, the Central officer went on, "our losses had become so great that there was no alternative course to follow. Our operations were substantially reduced. . . . Although our revenues dropped during this period, so did our loss from passenger service operations. The passenger deficit decreased from $54,300,000 in 1951 to $47,800,000 in 1955."

In late 1955 and much of 1956, after much criticism of the Central for not being more aggressive in improving and promoting its passenger service, the road not only held the line on service curtailment, but rearranged and improved its service between major centers. "At the same time," Mr. Nickerson said, "we spent a small fortune on a strong promotion and

C&EI Plays Host to Midwest 'Corn Queens'

The corn grows tall and the gals grow pretty in the Midwest, Chicago & Eastern Illinois Vice-President H. R. Sampson discovered when the railroad recently played host to Corn Queens from nine corn-producing states. The girls, all candidates for the title of "National Sweet Corn Sweetheart," represent Illinois, Ohio, Wisconsin, Minnesota, Kansas, Missouri, Nebraska, Indiana and Michigan.

advertising campaign to back this service program. In one respect this program was successful; for the first time in many years our passenger service revenues showed an increase, but what do you think happened to net income from the service?"

In 1956, the Central's loss from passenger service operations was $48,500,000, an increase of $10,700,000 over the previous year, the Central officer said. "We just could not keep up with the increased wage and material costs that hit us during this period, and I regret to say that increased wage and material costs seem to be a way of life in this country of ours."

"Looking back over these three periods," Mr. Nickerson said, "tends to lead to a rather unhappy conclusion. When we spent substantial sums of money and vigorously promoted our service, we increased our losses. When we contracted, we decreased our losses."

Backbone of the railroad business is the hauling of freight, Mr. Nickerson stressed. In the past, he pointed out, it was only by subsidizing out of the earnings from freight that kept passenger business alive. "Now the competition is becoming so intense for freight, with trucks and waterways, as well as with other railroads with very little passenger service, that every available financial resource must be spent to improve freight service and meet the competitive situation. On the Central alone, we have a $250,000,000 improvement budget in 1957 aimed at making our freight service better and more efficient.

"If this kind of thing is not done, and the money siphoned off for supporting deficit passenger service, we will be in imminent danger of 'killing the freight goose that lays the golden egg.' If that happens, a railroad such as the Central may have great difficulty in continuing a self-supporting company in the free enterprise system.

"It comes down simply to this, that with a deficit passenger business of substantial proportions, a railroad even as big as the NYC does not have the financial resources available to it to go into full competition with the taxing power of federal, state and municipal governments."

Denial of the ability to adjust passenger services to changing conditions, Mr. Nickerson concluded, "will mean the end of hope for preserving a hard core of mainline passenger services. The longer we are plagued by obsolete branchline and local operations, the more difficult it will be for us to take the steps that are necessary to improve or preserve our mainline operations, which serve the majority of the public involved."

Watching Washington *with Walter Taft*

• **GROWING SYMPATHY** for "the railroads' case" is thought to be visible in Congress. Legislators in the session just closed showed a more receptive attitude to railroad presentations than in the recent past, some observers declare. While no "big" statutory achievements were chalked up, it's agreed definite progress was made.

• **THIS SPURS HOPE** in some quarters that real gains can be made when Congress returns. Items to watch: Excise taxes on passenger and freight transportation—bulwarked by strong shipper support, railroads and other carriers can be expected to make a strong bid for repeal (or compromise reduction) of "temporary" levies; "Diversification"—some carriers are expected to start drums beating for laws to permit going farther afield in non-rail operations.

• **MAIL SERVICE** under common carrier truck tariffs is being explored by the Post Office. Keep your eye on ICC reaction to a not-yet-filed petition by a trucker for common-carrier mail rights. A "field day for lawyers" is foreseen if this petition is presented—procedural steps would prohibit start of such service, even if approved, any time soon. Legislation to expedite its institution may be sought next year if details can be worked out among trucker organizations-Post Office-ICC.

• **ALL-RAIL MEETINGS** at Chicago this week, called to "consider railroad revenues," may produce a petition for another freight rate boost after all. Talk is of 2.5 to 3% increase. Arguments *for*: railroads needed all they asked for in Ex Parte 206, got only 4.8% overall; business costs are still going up; money for that big payroll jump November 1 has to come from somewhere; the ICC practically invited a come-back bid. Arguments *against*: those advanced by Southern last time that across-the-board action is a two-edged sword.

• **QUICK ACTION** is being taken by the ICC on a new law permitting review of contract carrier trucking permits. Truck organization representatives and others interested in the matter have been consulted; now the commission will serve notice on all permit holders asking pertinent data which, with public hearings, will facilitate final determination of "who's what."

• **EQUIPMENT-FINANCING PROGRAM** calling for government assistance to carriers has been established, so there should be hope for the railroad program advocated by eastern roads under the leadership of President J. M. Symes of the Pennsylvania. President Eisenhower has signed into law the recently enacted bill providing for government guaranty of aircraft-purchase loans arranged by so-called feeder airlines.

• **THE SYMES PROPOSAL** calls for government purchase of rolling stock for lease to railroads, but the principle seems to be the same. Any follow-through, however, must await Congress' 1958 session, which will have in its hopper bills embodying the Symes plan. They were introduced by Senator Frear of Delaware and Representative Wolverton of New Jersey on the adjourned session's closing day.

Wall Street RR Opinion Continues to Be Mixed

Opinion among railroad security analysts continued mixed this month with "bears" and "bulls" finding room for agreement only on selected properties, which most view favorably.

Importance of the issue was indicated September 6 when an unusually large audience attended the season's first weekly railroad meeting of the New York Society of Security Analysts. It was a session devoted to discussion of the rail stock market by three Wall Street experts.

In the bulls' camp, where optimism is the spirit, were Wendell R. Reuss, of W. E. Hutton & Co., and H. F. Wyeth of Shearson, Hammill & Co. For the bears, but with definite reservations, was Lee Schaenen of H. C. Wainwright & Co.

Mr. Reuss, making the argument that railroads are in a periodic slump of the sort they've always risen from in the past,

(Continued on page 13)

Specially designed, providing

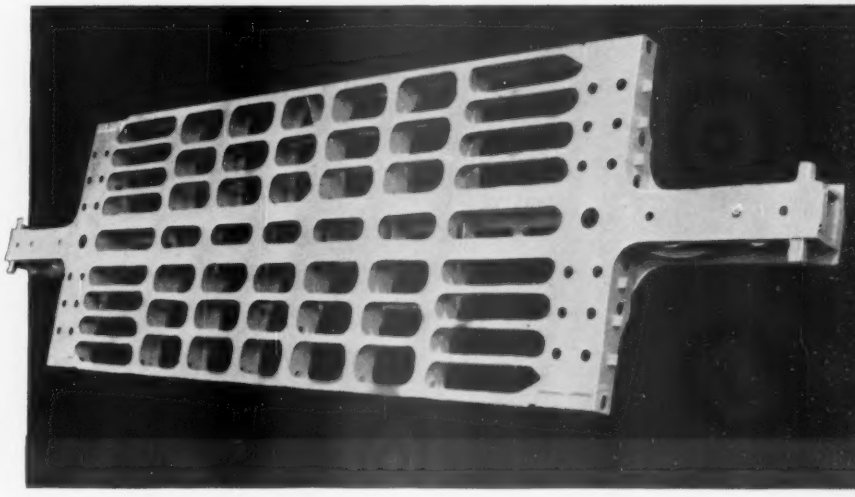
rugged stamina

for continuous, dependable service!

New Santa Fe Ore Cars with Maintenance-Free Commonwealth One-Piece Underframes will withstand heavy punishment!

These Santa Fe ore cars are sure to stand up under the *ruggedest* kind of service—the handling of copper ore—and remain in continuous operation! These new high capacity cars have clasp brake trucks with 6½ x 12 axles. They're specially designed with Commonwealth one-piece cast steel underframes providing exceptional strength at minimum weight, and assuring maximum availability—increased revenue.

The greater impact value of cast steel and the one-piece underframe design withstand ore loading impact better than other types of construction. Our years of experience in the design and production of Commonwealth Underframes have resulted in the elimination of costly maintenance.



Whether you require ore cars, flat cars, pulpwood cars, sulphur-carrying cars, well cars or depressed center cars, build with Commonwealth Underframes—and benefit from these advantages.

GENERAL STEEL CASTINGS

GEARED TO PROGRESS
P R I
MEMBER

Ease the strain of

pounding wheels!

Install Improved Hipower Spring Washers to ease the stress and strain created by constant, heavy traffic. NATIONAL spring washers absorb shocks by equallizing bolt tensions, and protecting rail ends and joints. Improved Hipowers are designed to provide reserve power for lasting effectiveness, reducing maintenance all along the line!

with —

IMPROVED HIPOWERS

A COMPLETE LINE OF
RAILWAY SPRING WASHERS

The NATIONAL LOCK WASHER COMPANY

Serving Industry Since 1886 — NEWARK 5, NEW JERSEY, U.S.A.

(Continued from page 10)
said he believes: rail traffic will rise with a general business uplift in the balance of the year, meaning higher revenues; back mail pay will add to this revenue; there is much "unappreciated strength to earnings" due to continuation of road and equipment maintenance programs; railroads that have not curtailed such costs actually saved money by not deferring the work until after the November 1 wage boosts.

Also, Mr. Reuss stated "I believe that many roads will disclose 1957 net income higher than for 1956, with some roads even recording a brand-new postwar peak."

Mr. Wyeth joined Mr. Reuss in criticism of "too much publicity" on fast write-offs and alleged overstatement of railroad earnings. In fact, he said, there is considerable "understatement" of rail earnings compared with other industry because of railroad accounting methods

He complained of "considerable negative—and in my opinion, loose—thinking" on rails, commenting that the emphasis should be on the roads that are overcoming the industry's handicaps.

Mr. Schaenen argued that reduction of industrial inventories has hurt the railroads seriously, and said that dieselization and automatic hump yards were the last major avenues for railroad cost cutting.

Mr. Wyeth differed here, however, contending that coordination of facilities and services where they are now duplicated is an area of big opportunity for railroads. None was hopeful about passenger service, though.

PRR to Drop Its Crosscountry Cars

The Pennsylvania's operation of transcontinental sleeping car service will be discontinued when the road's fall passenger timetables go into effect next month.

Four routes (two to Los Angeles, two to San Francisco) will be affected. On the New York-Los Angeles run, the PRR will drop a daily car handled in conjunction with the Santa Fe's "Super Chief" and an alternate-day car handled on the western end by the "City of Los Angeles" via the Milwaukee and Union Pacific.

Gone from the New York-San Francisco route will be alternate-day sleeping cars operated west on the Burlington-Rio Grande-Western Pacific "California Zephyr" and the Milwaukee-UP-Southern Pacific "City of San Francisco." All through cars now operate between New York and Chicago on the Pennsy's "Broadway Limited" except the eastbound car from the "California Zephyr," which is routed to New York via PRR's "General."

Indications were that a decline in patronage of the Pacific coast cars was responsible for the decision to end the service. The PRR will continue to operate its other through car schedules, including routes to southwest points via the Missouri Pacific and Frisco-MKT—routes which still carry a substantial volume of through-car business, according to a railroad officer.

Western opinion on the PRR action varied from a comment that the through cars were, in effect, "an expensive baggage transfer," to a definite expression of disappointment. A passenger traffic officer of one of the lines said his road felt the transcontinental cars were "of great value to us . . . in focusing attention to the fact that the railroads were anxious to provide the kind of service passengers wanted." He admitted that few persons remain in the cars during their lay-over in Chicago —but he also pointed out that the service was a "great convenience," particularly for elderly people or for mothers traveling with children.

All western roads involved said no arrangements have been made to transfer the cars to another routing between Chicago and the East coast. It was indicated that other existing through-car service will be maintained.

Burlington officers indicated they had attempted to expand their existing operations with the NYC into a daily service, but no agreement was reached.

The Pennsy's action writes an end to a comparatively recent innovation in modern passenger service. And, in retrospect, at least one railroad man questioned both the theory and practice of the operation. The cars, he noted, were placed in service at the end of peak transcontinental military moves; and they apparently outlived a relatively heavy period of transcontinental migration following the war.

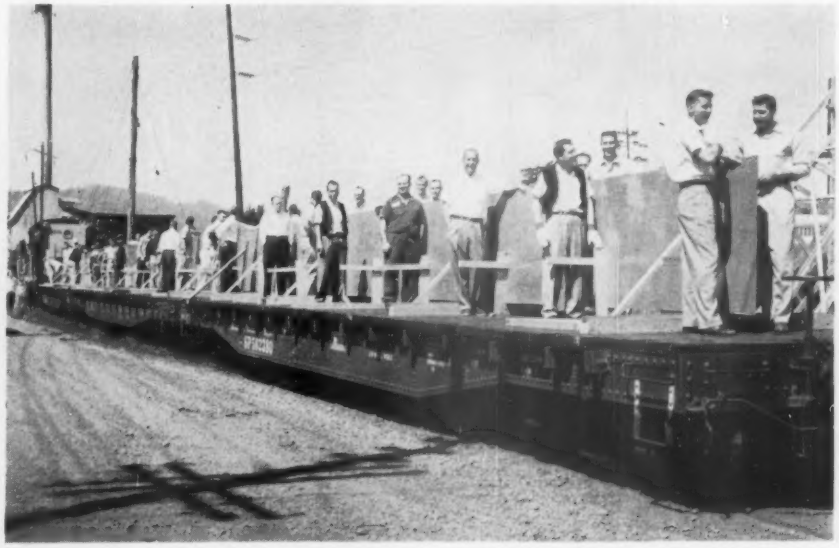
Then, too, it was pointed out, long layover periods hit the service at Chicago, particularly west-bound. The least time lag between arrival of the through car from New York and its departure for the Pacific Coast was seven and a half hours; on other westward movements, the layover was as much as 11 hours. Eastbound, the delays were considerably less —minimum two hours and 15 minutes, maximum five hours.

Transcontinental through sleeping car service was inaugurated early in 1946, with operations carded over 14 routes. According to a table compiled by Railway Age later that year, the PRR operated through-cars on seven routings, five daily and two alternate day, between New York-Washington and Los Angeles-San Francisco (Railway Age, Nov. 16, 1946, p. 790).

Canadian RRs Ask Higher Rates

Canada's railroads have applied to the Board of Transport Commissioners for an additional increase in freight rates. When the board opens freight-rate hearings September 24 it will have before it for final determination the original request made by the railways last year for a 15% boost.

In June of last year the board granted the railways a rate increase of 7% as "an interim measure of relief," and a further 4% rise was authorized last December as "a measure of additional interim relief pending final determination of the 15%
(Continued on page 15)



Plywood Panel Arrives—Via Three SP Flat Cars

One plywood panel—4 ft wide and 163 ft, 3 in. long—is on display at the Tillamook, Oregon, County Fair, after arriving in Tillamook on three Southern Pacific flat cars. Unloading operations were aided by a delegation of Jaycees and Boy Scouts. Twenty-two sections of 5-ply marine plyboard were required to make the 652-sq ft panel. Diamond Lumber Company was the manufacturer.

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Electrons Can Cut Costs

Lower maintenance costs and better engine performance are expected by the Pennsylvania's research men because of a recently adopted electronic device that takes only two minutes to measure and report on the rate of locomotive engine wear. The device, called "Quantometer," is shown being used by chemical laboratory foreman E. G. Wertz in the Altoona, Pa., test laboratories.

(Continued from page 13)

application." (Railway Age. June 25, 1956, p. 12, and Dec. 24, 1956, p. 7). The railways' latest application asks that the remaining 4% in the original 15% request be raised to 10%.

Last December the board fixed the permissive level of net rail income for the Canadian Pacific at $52,300,000, equal to a return of 3.9% on the $1,340,000,000 found by the board to be the net investment in the rail enterprise of the CPR at December 31, 1955. Estimates of the CPR for the calendar year 1957 and for a constructive year indicate the net income would be deficient by about $6,500,000 and for the constructive year $4,500,000 compared with the level of earnings for the CPR fixed in the board's judgment of last December 28.

The CPR has increased its investment in rail property in the ten years 1947 to 1956, inclusive, by $266,847,715, of which $242,600,000 has been contributed from other than rail sources. Except to the extent of conversions of collateral trust bonds to ordinary stock in accordance with their terms, the board's present formula has not provided any return on the amount of the increase in equity capital investment in rail property since 1947, the new application for higher rates says.

In their May 1956 application Canadian railways said the increases in rates under the application, as amended, together with upward adjustment of competitive rates, would yield to the CPR additional gross revenue of $17,263,000, and the Canadian National $23,636,000, on an annual basis at the estimated traffic level for 1957.

Joint Effort Will Sell RR Travel

Individual railroad efforts to promote and sell rail travel are all right up to a point, but the big need today is for a mass assault that will "increase our share of current travel and sell the new population."

At least that is the view of S. A. Watson, passenger traffic manager of the Kansas City Southern. Mr. Watson suggested last week that railroads working together to sell rail travel could produce a "tremendous boom."

"Joint effort by all lines would benefit all lines," Mr. Watson declared. "If we can make the public rail minded, we will all eventually share his travel dollar."

Areas in which inter-railroad cooperation could pay off, according to Mr. Watson, include joint advertising, more cooperation with tour agents, free optional honoring arrangements over competitive routes, and careful analysis of fare structures.

CNR Plans Huge Montreal Center

Canadian National directors have approved a master plan designed to transform 21 acres of Montreal, Que., into a great commercial and cultural center.

The plan—details of which were revealed by Donald Gordon, CNR president, and William Zeckendorf, president of Webb and Knapp (Canada) Ltd.—embraces three blocks in the railroad's terminal area around Central Station and calls for a multi-level complex of buildings, transportation and parking facilities, banks, shops and restaurants rising over CNR tracks in the area bounded by Cathcart, University, St. Antoine and Mansfield-Inspector streets.

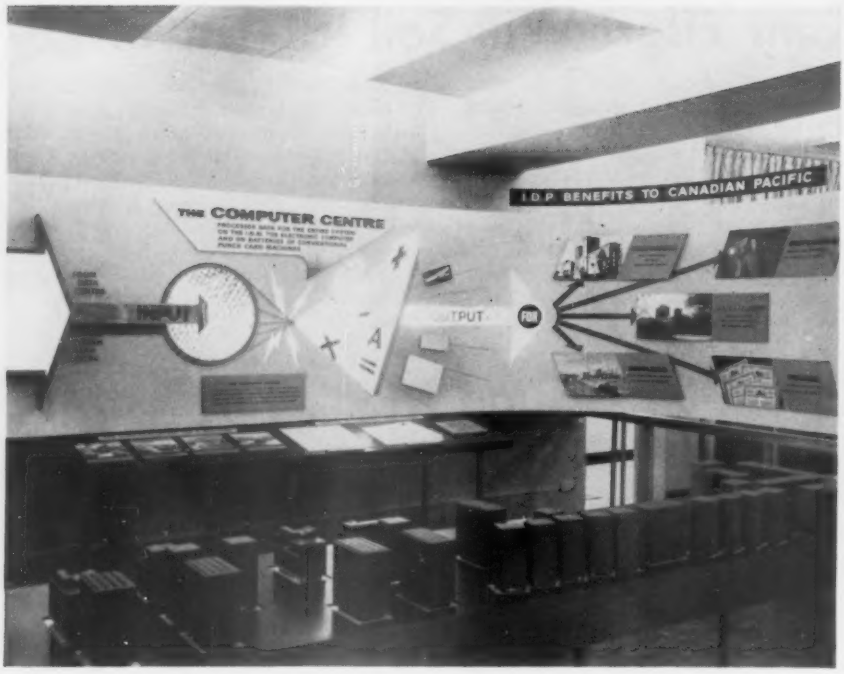
About one-third of the property is earmarked for immediate development. CNR's acceptance of the plan provides for the leasing by Webb and Knapp of a specified seven-acre area. The lease is to be signed within three months, after which final construction plans will be drawn. Work will begin at an early date. Under the agreement, construction of the center must be substantially completed within five years.

Most striking feature of the development —to be named "Place Ville-Marie" in comemoration of the first settlement founded on the site of what is now Montreal—will be a cruciform-shaped metal and glass skyscraper. This structure, 550 ft high with 40 floors of office space, is to be the largest in Canada. It will provide 1,500,000 sq ft of air conditioned office space.

A massive three-story transportation center will be provided just south of the development to integrate all rail, air, bus and automobile facilities in the terminal area. The roof will be a landing area for helicopters. This part of the master plan also calls for a five-story CNR general office building for headquarters personnel.

GENERAL VIEW, looking north, of what the Canadian National's terminal area in downtown Montreal may look like when completed. Transportation center is shown in the foreground, and the 40-story cruciform office skyscraper in the back ground.

of America, 2180-J Alcoa Building, Pittsburgh 19, Pa.



CPR 'Brain' Goes on Transcontinental Tour

A giant portrait in words and pictures of the Canadian Pacific's coast-to-coast system for handling the mass of paperwork required to operate the railway recently began a two-month trip across Canada in a specially fitted railway car. Purpose of the exhibit—which features the road's new IBM 705 "electronic brain"—is to show the function and uses of the CPR's integrated data processing system, inaugurated last March. Exhibit, to be viewed at 49 centers across Canada, traces the history of recording transactions and processing business information from the clay tablets of the Sumerians and the abacus of the Chinese through the early typewriters, comptometers and adding machines up to the new tools which have made possible a revolutionary approach to handling paperwork.

First Atom Loco Seen by 1960

Based on the rapid progress of reactor technology, railroads can have their first atomic locomotive in operation in 1960.

This prediction was made last week at the Ninth Pan American Railway Congress by Edward J. Kehoe, of Albuquerque, N. M., formerly with the U. S. Atomic Energy Commission and now staff assistant to the manager of the Albuquerque Operations of ACF Industries.

In a paper submitted to the Congress in Buenos Aires, Argentina, Mr. Kehoe said the first atomic locomotive will be a prototype and will probably be unable to compete with diesel locomotives in cost.

However, he added, by 1970 atomic locomotives should be able to justify their existence economically in high speed and higher power service, and thereafter should be in a position to compete with diesels under average operating conditions.

"A reciprocating atomic locomotive would not have to stop for fuel, and if provided with a condenser would use little water," Mr. Kehoe explained. "If the time comes when atomic units completely replace diesels, present fueling equipment would become unnecessary, just as the diesels did away with extensive watering facilities."

Mr. Kehoe referred to the studies now under way to investigate applications of nuclear energy to all phases of the railroad industry, and pointed out that one subject of great potential significance to railroads, besides the possibilities of an atomic locomotive, is the radiation sterilization of foods to eliminate ice and mechanical refrigeration.

"In this process," he said, "the food is exposed to radiation from cobalt, which kills the microorganisms which normally cause rotting and there is no residual radiation and no health hazard."

The future of the railroads in the United States depends to a large extent on the public attitude toward the industry, Albert R. Beatty, assistant vice-president of the Association of American Railroads, told the Congress.

For this reason, Mr. Beatty said, "railroad public relations, which has become increasingly important in recent years, may be expected to play an even more important role in the future."

"The success of the railroad industry in the United States," he continued, "is closely related to the relationship which exists between it and the public—not only that part of the public which uses its services, but also those who may never have occasion to ship or travel by rail."

Recognizing the need for good public relations, Mr. Beatty stated, the railroad industry in the United States has carried on a cooperative public relations program for 22 years. Part of the work is being done by the Association of American Railroads, part by the regional railroad organizations and part by the individual railroads, he added.

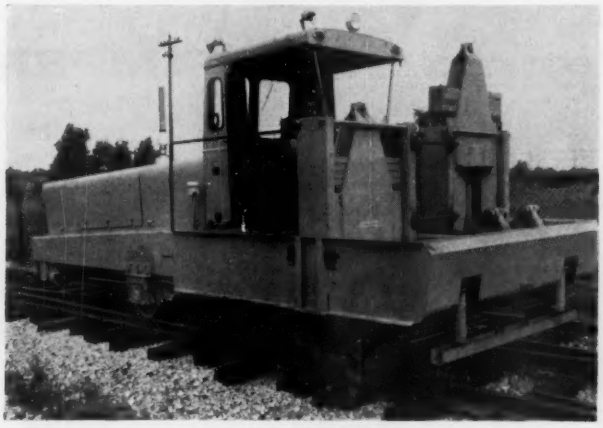
Pointing out that this program has come to the attention of railroads in many foreign countries and other businesses in the United States, Mr. Beatty said that "some foreign countries have sent representatives to the United States to obtain information concerning railroad public relations activities in this country, and other businesses in the United States have likewise asked for data pertaining to the public relations work for the railroad industry as a whole."

"In the more than 20 years that the railroads of the United States have been carrying on their nation-wide public relations program," Mr. Beatty concluded, "they have come a long way toward creating with the public a good impression of the industry and a more friendly attitude toward it. However, they know that much remains to be done, and that their activities along this line must not only be continued but must also be expanded and intensified."

Finns Study U.S. Methods

Electronic wizardry of the New York Central's freight car reporting bureau at New York City is explained by supervisor James Ronan (seated), to K. M. Matilla (left), planning engineer, and I. Saukkonen (center), terminal superintendent, of Finnish National Railways Commission. Both men, in this country for a six-week observation tour of American railroads, spent three weeks touring the Central, under the guidance of Warren Walworth (right), NYC training advisor.

New Products Report



Redesigned Power Ballaster

The Pullman-Standard Power Ballaster has been completely redesigned. Features of the new machine include hydraulic drive and control and a split crosshead mounted out in front. Adjustable length of stroke and selective tamping depth are said to add to the versatility of the machine and the effectiveness of the tamping action. The new machine is designed to tamp any raise in any ballast.

The crossheads are completely independent of each other and have separate controls. Trip valves in the hydraulic system enable the stroke or drop of the crossheads to be varied. *Track Equipment Department, Pullman-Standard Car Manufacturing Company, Dept. RA, 1414 Field st., Hammond, Ind.* •

Tie-Spacing Machine

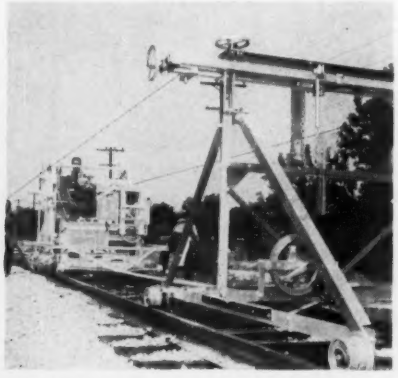
The Pullman-Standard Tie Spacer is a self-powered, hydraulically operated machine designed to space and straighten ties during heavy tie-renewal operations, to provide for out-of-face spacing where the number of ties per rail is changed and to straighten and space ties ahead of tamping operation. It may also be used to nip and hold ties for spiking.

The machine, track-mounted and self-propelled, is powered by a Wisconsin 4-cylinder engine. It can be operated by one man, and is said by the manufacturer to perform the work of a six-man crew in only a fraction of the time. *Track Equipment Department, Pullman-Standard Car Manufacturing Company, Dept. RA, 1414 Field st., Hammond, Ind.* •

Friction Draft Gear

The Mark 40 self-contained draft gear, said to be the highest capacity friction gear offered for the standard 24 5/8-in. pockets in freight cars, has been conditionally approved by the Mechanical Division of the Association of American Railroads.

Designed to meet heavier operating requirements, it is made of heat-treated alloy steels, and has an official rated capacity of 42,420 foot-pounds. It has a reaction force under 500,000 lb. *Cardwell Westinghouse Company, Dept. RA, 332 South Michigan ave., Chicago 4* •



C&NW Tests Trak-Surfacer

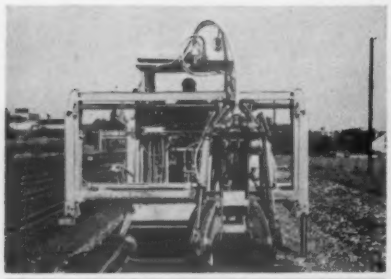
The Chicago & North Western's test run of a Nordberg Trak-Surfacer is pictured in progress near Glencoe, Ill. The machine is designed to raise track by a specified number of inches, then to tamp the tie at the jacking location. Basic principle involved is the forming of a moving reference line by use of a taut steel wire. A pointer mechanism and cross level assure accurate positioning of both the grade rail and the opposite rail. *Nordberg Manufacturing Company, Dept. RA, 3073 Chase ave., Milwaukee 7, Wis.* •

Ballast Blader and Shaper

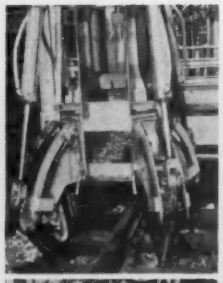
The recently introduced Fairmont W92 Series B Ballast Blader and Shaper is designed to level new center track ballast to the desired depth and plow the surplus over onto the tie ends. With the plow blades reversed in the mounting frame, it will move ballast from outside the rails over into the center track area. The side wing blades will dress the shoulder ballast, or when reversed in the mounting they will move shoulder ballast up onto the tie ends for tamping. *Fairmont Railway Motors, Inc., Dept. RA, Fairmont, Minn.* •

Now Big-Tamper

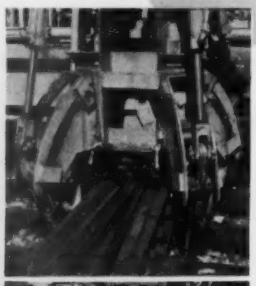
from a SPOT TAMPER



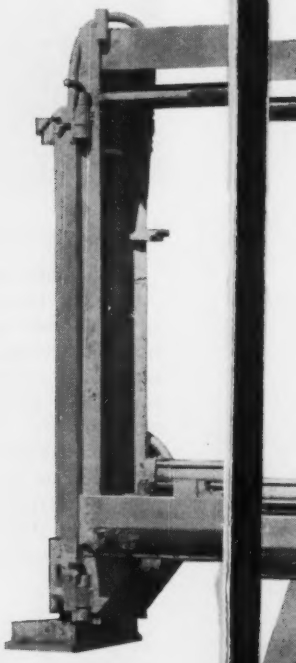
Spot Tamper clamps to rail, either or both lifting cylinders raise track desired amount. Cycle for tampering both ends of tie is about 35 seconds.



At each rail machine tamps at outboard and inboard positions, tamping tools extending under the rail.



Machine will tamp 75% of a turnout. With manifold provided for tamping balance with hand guns.



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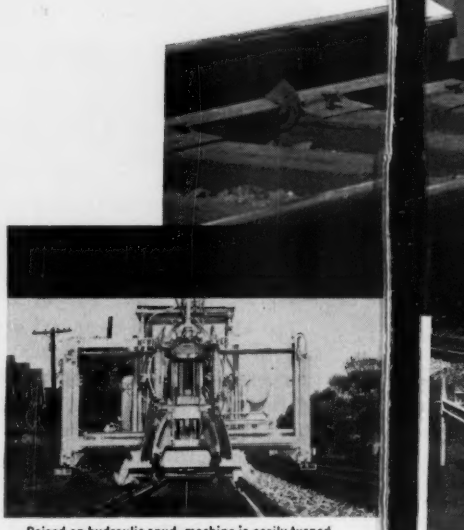
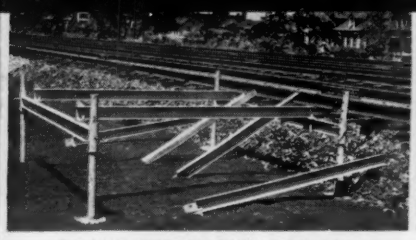


Raised on hydraulic spud, machine is easily turned for setting-off or changing direction.

Ballast Compaction

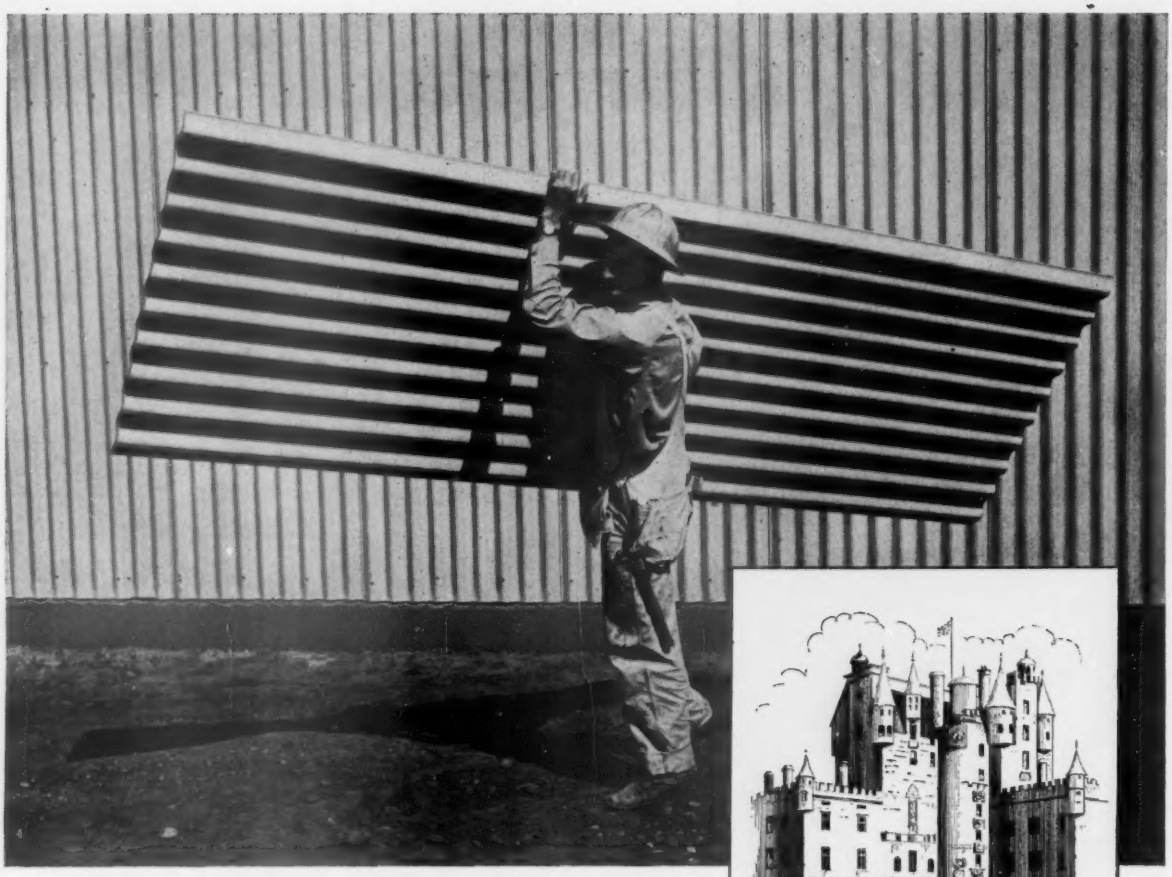
AN IMPROVED SET-OFF SYSTEM

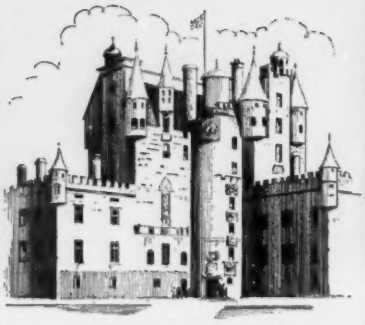


New R.M.C. Demountable Set-Off, any piece can be carried by one man.

Machine part way out set-off under its own power.

In the clear.





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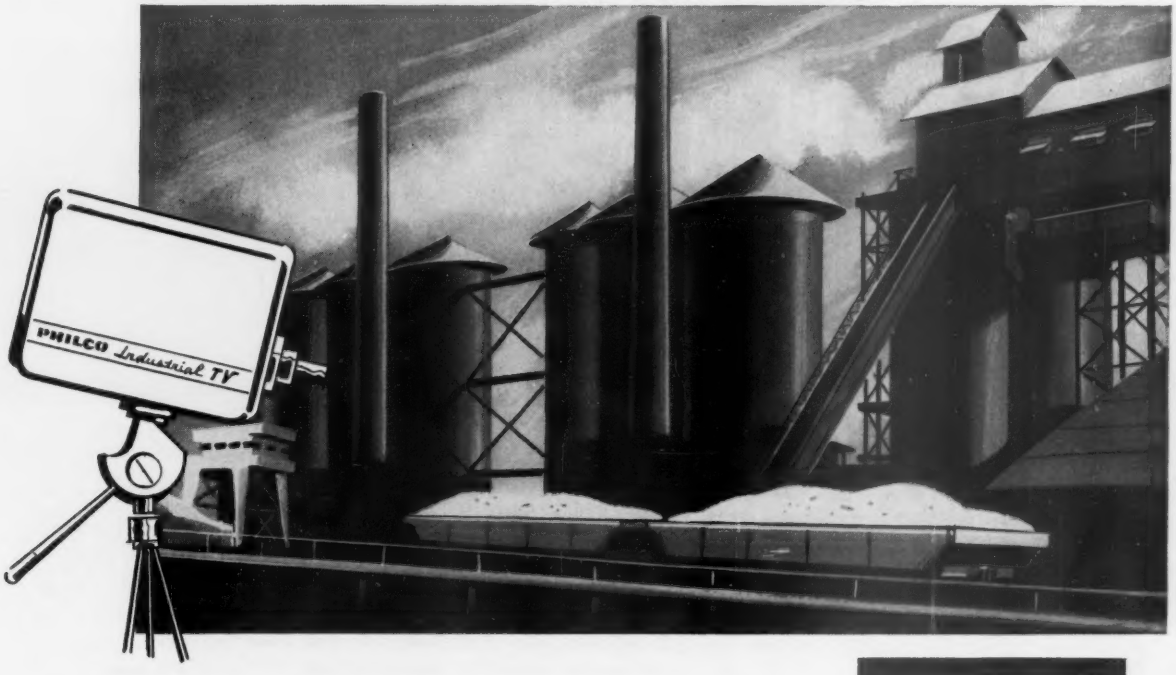

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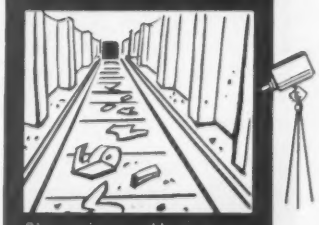
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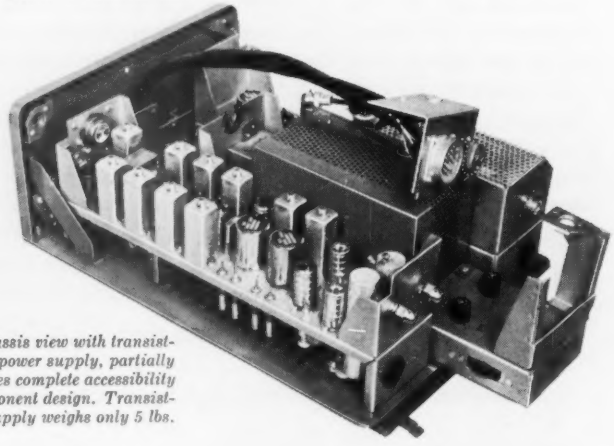

Chassis view with transistorized power supply, partially pulled, illustrates complete accessibility of plug-in component design. Transistorized power supply weighs only 5 lbs.

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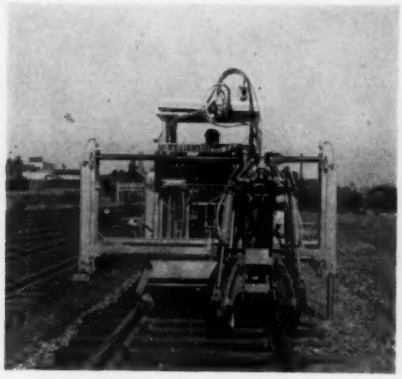
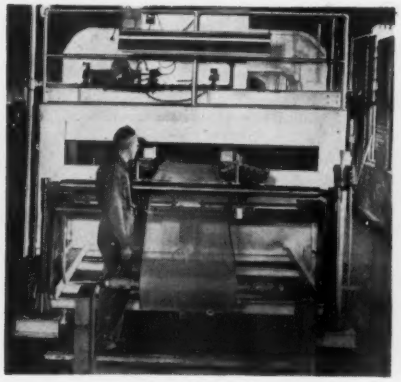


On-Track Spot Tamper

Designed to provide big-tamper compaction quality, the McWilliams spot tamper has been developed for smoothing, spot surfacing and yard and terminal maintenance. It is also designed for general tamping on railroads where trackage does not warrant use of the production-type tamper.

The new machine clamps itself to the rails and raises the track to the designed height by using one of two self-contained hydraulic jacks. Four air-operated guns of special design are used for tamping in two positions at each rail. The tamping cycle for both ends of a tie is about 35 sec.

In operation the machine performs as follows: (1) Machine is spotted with rail clamps under base of rail; (2) either or both lifting cylinders lower into the ballast until the track is raised to desired height; (3) tamping pad is lowered hydraulically and tamping is done in eight positions; and (4) if tamping both ends of the ties is desired, the guns are moved horizontally to the other rail where eight more positions are tamped. The machine is also equipped with a hydraulic spud. *Railway Maintenance Corporation, Dept. RA, Box 1888, Pittsburgh, Pa.* •

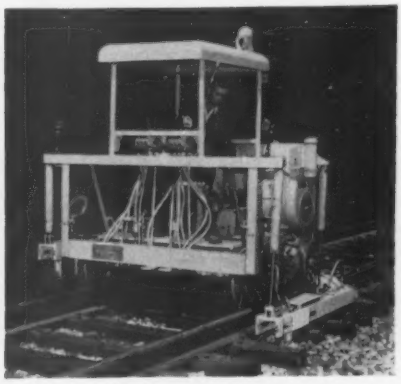


Fiberglas Screening

U. S. Steel's Fiberglas screening is made by weaving of the screening on looms, then treatment of the material in a gas-fired heating oven to "square-set" the cloth and fuse the vinyl-coated yarn at each cross-section. Qualities claimed for the screening include light weight, resistance to corrosion and fire, ability to withstand shocks and better visibility through the mesh. Screening is being produced in all standard widths. *United States Steel Corporation, Dept. RA, 208 South LaSalle st., Chicago 90* •

Two-Unit Detection System

A new electromechanical weighing and alarm device has been designed for use at truck terminals. The two units are set up to weigh trucks as they pass. The vehicle to be weighed is halted with the wheels of one axle resting on a 3-by-10-ft scale plate, flush with the pavement. The plate rests on four weight-sensing electronic cells. One axle at a time is weighed; if one axle load is overweight, the alarm rings and the truck is moved ahead to weigh the next axle. *Taller & Cooper, Dept. RA, 75 Front st., Brooklyn, N. Y.* •



Machine for Spacing Ties

Slewed ties may be straightened and other ties properly spaced by the new R. M. C. Tie Spacer. This unit has a hydraulic shifting device on each side. These are raised and lowered by hydraulic controls. When lowered, the shifting device automatically clamps onto the ball of the rail so the hydraulic pressure used for shifting the tie is transmitted directly to the rail and not to the machine, thereby permitting a relatively lightweight unit.

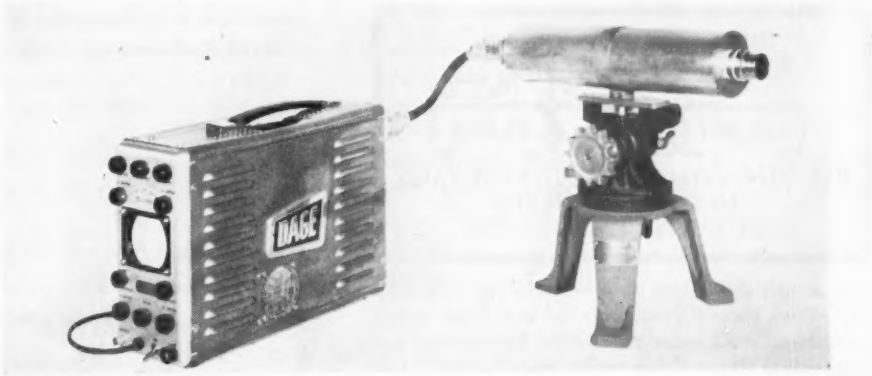
Each shifting device may be operated simultaneously with or independently of the other. This makes it possible for the tie spacer to move a tie in either direction parallel with the rail by engaging both ends simultaneously, or to move one end forward while pulling the other backward. Also, one end may be moved independently forward or backward to correct a slewed condition.

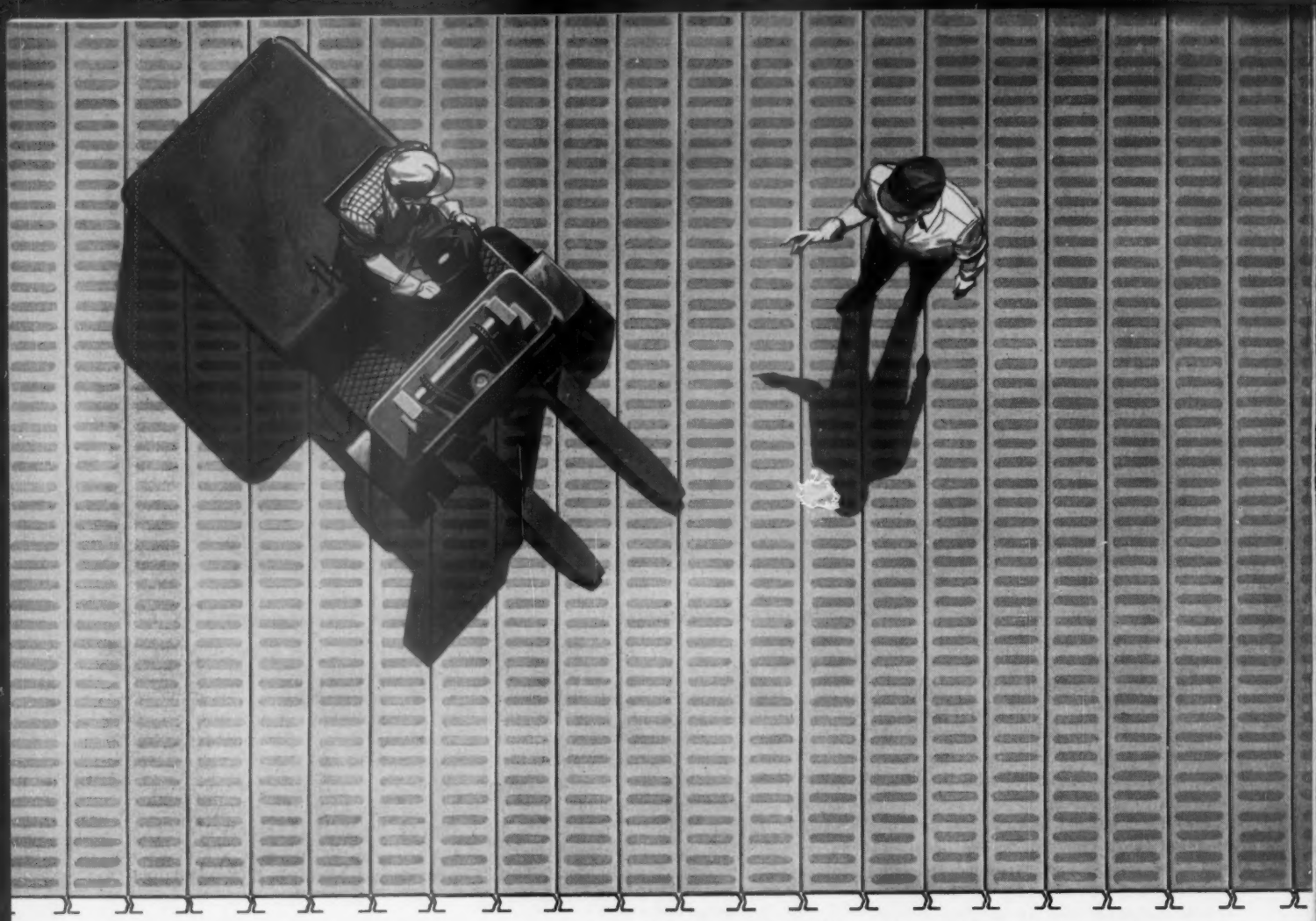
The machine is equipped with an integral turntable for permitting the operator to reverse its direction on the track or to remove it from the rails onto a demountable set-off. The Tie Spacer is a self-propelled unit and will travel from 20 to 25 mph. *Railway Maintenance Corporation, Dept. RA, Box 1888, Pittsburgh 30* •

Miniature TV Camera ▶

Designed especially for places which are inaccessible or where space is limited is a new Cyclops TV camera weighing only 10 lb. This new camera is controlled electrically from the control amplifier, which includes a viewfinder and which may be up to 400 ft from the camera head. One suggested railroad use is for inspection of freight car trucks and undersides of cars.

The Cyclops head mounts a 16-mm lens in a focusing collar. *Dage Television Division, Thompson Products, Inc., Dept. RA, 10th st., Michigan City, Ind.* •



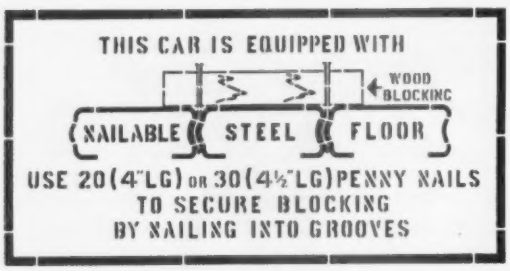


More ladings have traveled safely on N-S-F *equipped freight cars than on those equipped with any other nailable steel flooring.*

N-S-F®: PIONEER IN NAILABLE STEEL FLOORING

12 years of actual use in freight cars have proved the superior qualities of NAILABLE STEEL FLOORING. Sixty-two of America's leading railroads have installed NAILABLE STEEL FLOORING in over 60,000 gondolas and boxcars; the savings these roads have enjoyed is ample proof of NAILABLE STEEL FLOORING'S ability to deliver the goods.

You can get information on the original nailable steel flooring from N-S-F representatives in Chicago, New York, Philadelphia, St. Louis, Cleveland, San Francisco, Minneapolis and Atlanta. In Canada, N-S-F is made and sold by International Equipment Co., Ltd., Montreal.



The stencil that smart shippers look for in freight cars. They know it identifies a car with better lading protection. And smart railroaders know N-S-F *can help reduce Cause F loss and damage claims.*

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Originated and sold by—
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The Electronic Yard: where freight trains get off to a fast start

Moving freight cars are weighed, routed, and their speed controlled—electronically. Thus trains are swiftly assembled.

More Railroad Progress like this depends on adequate earnings

Isn't this common sense?

Improvements such as the electronic freight yard cost a lot of money—money which the completely self-sustaining railroads must supply from their earnings. When railroads are able to improve their services, we all benefit. And railroads just aren't earning enough money these days to put into operation all the improvements they have developed, as fast as they would like.

Railroads *could* make enough money to do more of these things, for they are – by far – our most efficient system of mass transportation. But their earning power is hamstrung by outdated government policies that favor competing forms of transportation.

As a result, the railroads' earnings are reduced – and the nation loses some of the benefits of railroad progress. In your interest – in the interest of *every* American family – railroads should be given equal opportunity to earn an adequate return on their investment. *Isn't this common sense?*

AMERICA MOVES AHEAD WITH THE RAILROADS

YOUR BASIC TRANSPORTATION

Association of American Railroads, Washington, D. C.

WHEEL LIFE EXTENDED 200% WITH BUDD DISC BRAKE

Based on current wheel-life studies, CR wheels used on the Canadian Pacific's transcontinental "Canadians" and "Dominions" are providing 2 to 3 times as much mileage as BR wheels. This performance applies to a wheel investment of over $100,000 on 173 cars. The use of these Class C wheels is possible because these trains are equipped with Budd disc brakes and Rolokrons.

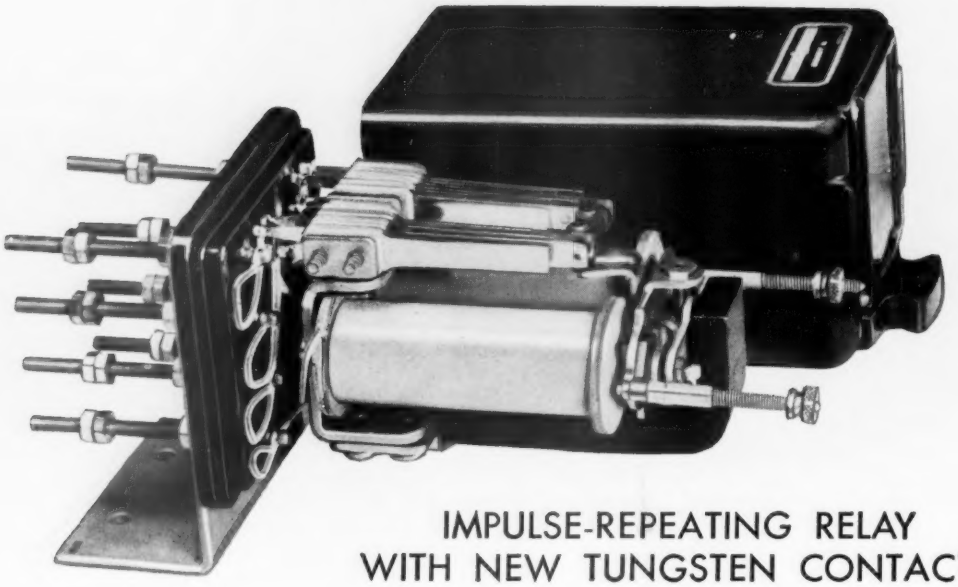
The greater service life advantages of the "C" wheels (higher carbon—harder material) can be obtained successfully only when the wheels are used with Budd disc type brakes. Conversely, *all* tread type of braking because of thermal demand has required the use of B or A wheels (lower carbon—softer material) to reduce the hazards of thermal cracking.

This is only one outstanding example of amazing service records being reported in favor of the Budd Disc Brake and Rolokron.

THE BUDD COMPANY, PHILADELPHIA 15, PA.

Buell

AAR APPROVED!



IMPULSE-REPEATING RELAY WITH NEW TUNGSTEN CONTACTS

It's here . . . an Impulse Repeating Relay that has the "beefed up" ruggedness required by railroads to handle high voltage-low current switching for selector signaling. (In railway service these relays are sometimes required to switch a one-ampere load at approximately 400 volts d-c.) At the request of the New York Central Railroad, Automatic Electric went to work on the problem of contact failures in this service.

We tried this! We equipped our standard BR-1 and BR-2 Impulse Repeating Relays with ⅛ inch tungsten contacts. We felt that tungsten contacts would prove much more satisfactory for high voltage-low current switching than did the Code 1-14 contacts previously supplied.

That was it! After extensive trial and evaluation, it was the unanimous decision of the A.A.R., in their May meeting in Ohio, to adopt the heavy duty tungsten contacts for all conditions.

Now available! BR-1 and BR-2 Impulse Repeating Relays in either tungsten contacts or standard Code 1-14 contacts. Spring assemblies (complete with angle mounting bracket) are available for field conversion.

For more information call or write Automatic Electric Sales Corporation, Northlake, Illinois. (Telephone: Fillmore 5-7111.) *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

AUTOMATIC ELECTRIC

A member of the General Telephone System – One of America's great communications systems

GENERAL SYSTEM

This radio-equipped caboose is one of the 32 now in service on the Lackawanna. Receiver and transmitter are powered by an alternator-rectifier-battery system.

Instant communication between conductor and engineer or dispatcher speeds freight service — is maintained by reliable nickel-iron-alkaline batteries in radio's power system.

Lackawanna puts Edison nickel-alkaline batteries in 32 radio-equipped cabooses

Today, Edison nickel-iron-alkaline batteries ride the high iron in style — in 32 Lackawanna cabooses. Their job: power for two-way radios. And they do it well!

First, they're mechanically *durable.* Nickel-iron-alkaline batteries' steel cell construction withstands the shock and vibration of freight service. The batteries are practically unaffected by heat . . . and they're not subject to injury by freezing.

Second, they're electrically *dependable.* The Lackawanna gets uninterrupted power from Edison nickel-iron-alkaline batteries because they're electrically sound. They're not harmed by occasional overcharging or excessive drain from irregular run conditions.

Greater operating economy, too

Nickel-iron-alkaline batteries have a long average service life. This means lower replacement costs and lower maintenance costs . . . substantial savings year after year.

Take a tip from the Lackawanna. Specify nickel-alkaline batteries for your communication systems, and for signals, car lighting and air-conditioning, and in industrial trucks.

INCO TRADE MARK THE INTERNATIONAL NICKEL COMPANY, INC. 67 Wall Street New York 5, N.Y.

For the long...

the short...

and the tall...

TWIN STRUCTURES of Armco Steelox construction serve the UP at Council Bluffs, Iowa. Wash and locker rooms are in foreground building and engine dispatcher's office is in rear unit.

FREIGHTHOUSE on the CB&Q at Morton Park, Ill., was built by the Luria Engineering Company. Standardized steel frame building is 70 ft wide, 310 ft long.

STOREHOUSE for the Missouri Pacific was fabricated by the Steelcraft Manufacturing Company. Steel framework has been covered with corrugated asbestos-cement sheets.

GARAGE and ample space for material storage are provided in this standardized metal building, manufactured by Black, Sivalls & Bryson, Inc.

STATION at Washington Court House, Ohio, on the DT&I, of Armco Steelox construction, replaced frame building at left. Interior was finished in modern decor.

. . . in buildings the railroads today are relying more and more on **Practical 'Prefabs'**

A far cry from the "tin shacks" of yesteryear, modern prefabricated metal buildings are performing a great variety of functions on the railroads. Long established as versatile, economical and durable housings for storage purposes, metal buildings have more recently intruded into the domain of the more conventional frame and masonry structures to serve as passenger depots, locomotive and car shops, freighthouses and bunkhouses.

So, you ask, what's so special about metal buildings? Precisely this question was put to a number of building engineers on railroads that have many such buildings in service. The answers bring out two major advantages: (1) Being prefabricated means the buildings are standardized, have a certain degree of portability, and are easily modified; and (2) being metal means that, except for an occasional coat of paint, they're relatively maintenance free.

As an example of railroad thinking with regard to metal buildings, let's consider the case of a building engineer who had to put up a new section house for one of his road's maintenance-of-way gangs. The old structure was really showing its age. All things considered, the frame building, on a concrete slab foundation, had given good service. It had survived some pretty severe storms (and leaked a little), had been attacked by termites (and weakened quite a bit), went through a fire (see those blackened spots on the wall?), and, through the years, had developed a few rotten timbers.

In selecting the type of structure for the new section house the building engineer had several requisites in mind. Fire-resistance and resistance to termites and decay ranked high among these. So did economical maintenance. First cost, too, was important. But there was still another consideration in the back of his mind—the possibility that the section gang at this location might eventually be eliminated, in which event it would be to the advantage of the railroad to have a building that could be salvaged for use elsewhere.

Since a prefabricated metal building seemed to have all these requisites he bought one and it worked out even better than he had anticipated. The old foundation slab was still serviceable, so he reused it. A local bridge and building gang dismantled the old structure and erected the new one. "Funny," the building engineer remarked after the job was done, "it took the gang two days to tear down the old building and clear away the debris and less than one day to get the new one up."

It wasn't too long before it was found necessary to enlarge the original metal section house to accommodate the signal maintainer at that location. This was done by simply pouring an extension of the foundation slab and adding extra wall and roof panels. The extra panels came from a metal building which had been retired elsewhere.

Variety in Size, Style

"The versatility inherent in a prefabricated metal building is what is really selling the railroad building people," said another engineer of buildings. "With conditions changing constantly, we never know when we'll have to abandon one facility and immediately construct another. With these 'take-apart-put-together-again' buildings, our problems in that respect are virtually solved."

MORE ►

What railroad men say about metal 'prefabs'

ELECTION—They go up easily and quickly—skilled labor, special tools or power equipment are not needed.

VERSATILITY—"Add-on" sections allow expansion and modification—ease of disassembly permits quick take-down and re-erection elsewhere.

MAINTENANCE—An occasional coat of paint is normally all that's needed—aluminized-steel and all-aluminum buildings may eliminate need for paint.

DURABILITY—As long as there's no rust or corrosion, metal buildings will remain structurally as sound as the day they were first erected.

ECONOMY—These factors combined make prefabricated metal buildings economically desirable.

The many manufacturers of prefabricated metal buildings offer them in a variety of shapes, sizes and arrangements. Many different types of doors, windows, ventilators and other accessories are available. Some manufacturers, instead of standardizing particular buildings, have standardized building units, such as wall and roof sections. Using combinations of these standard units, it is possible to gain wide flexibility in design and thus produce buildings to meet a variety of applications. Unless specifications are extremely unusual, it is possible for a railroad to construct a prefabricated metal building of one story to meet practically any requirement.

Design data and planning information are regularly furnished by the manufacturers so that overall structural strength and the strengths of individual members can be checked readily by an experienced building designer. Thus, reliable estimates can be made by the railroad as to the expected life of each building and allowance can be made for unusual conditions of wind and snow load, atmospheric corrosion and other such factors. It has been found that, in general, metal buildings conform to local building codes.

Improved welding techniques have resulted in rigid-frame designs for metal buildings which allow long spans at less cost than conventional roof-truss construction.

Some metal buildings employ structural framing involving the use of rolled steel sections for columns, beams, trusses, purlins, girts, bracing, and framework for doors, windows and other components. Many designs incorporate bolts or fasteners of special types to hold the building components together securely while providing ease of removal for dismantling and re-erection, or to allow structural modifications to be carried out.

Frameless buildings are available which incorporate interlocking steel panels joined together in weatherproof tightness. Interiors of metal buildings can be finished as desired. Insulation is often installed to provide heating economy in winter and comfort in summer. Roofs, available usually in gable or shed style, can be ventilated to exhaust objectionable fumes and/or heat. Skylights of the conventional type, or translucent plastic panels in weatherproof frames, can be easily incorporated.

Low-Cost Erection

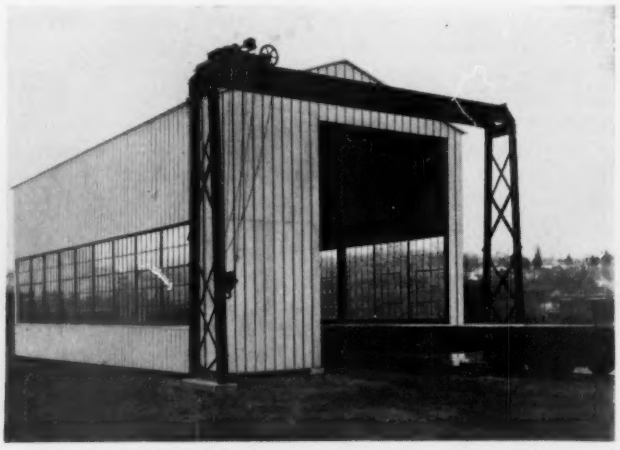
Railroad men say that metal buildings appeal to them because they are simple to construct and can be erected at a lower cost than other types of structures. A metal building can usually be put up—except in cases of unusual "custom" installations—by regular bridge and building forces. No special tools or power equipment are required.

Foundations for prefabricated metal buildings are generally lighter and less expensive than those required for conventional construction. Time can usually be saved in their erection by pouring the foundations prior to the expected delivery date for the building components. The usual cleaning up of scrap and waste materials following erection is practically eliminated.

Metal Building Maintenance

Since they go up quickly, metal buildings can be placed in service with a minimum loss of time. Weather has little or no effect upon construction—except, possibly, in pouring of foundation slabs or footings.

RIGID-FRAME train shed on the Kansas City Southern at Shreveport, La., is 600 ft long and was fabricated by the Butler Manufacturing Company.



CAR SERVICING shed, incorporating interlocking standardized wall and roof panels, was fabricated by the H. L. Vokes Company.

For best results, metal buildings, with the possible exception of some all-aluminum or aluminized-steel structures, should be carefully painted in order to achieve maximum longevity. While galvanized steel will effectively resist corrosion for a much longer period than will uncoated steel, it is not entirely immune. Some steel building panels are treated to provide a bond for immediate painting upon erection. Regular galvanized steel panels, however, say the manufacturers, should be allowed to "weather" until the "new luster" has vanished.

Where it is necessary for the sake of architectural appearance to paint such buildings upon erection, some manufacturers recommend that the exterior surfaces be treated with a bonderizing material before any protective coating is applied. Due to the use of relatively light-gage metal in most buildings, it is economical to use only the best grades of metallic paint for the exposed exterior surfaces. Dirt, grime and grease should be removed with a detergent after which the surface should be covered by a basic rust-inhibiting pigment before the finish coats are applied.

With the exception of their foundations, metal buildings are almost 100 per cent recoverable. Thus, in addition to lending themselves readily to expansion and modification, they can be easily disassembled and re-erected. There are many cases on record where metal buildings have been taken down, shipped to new locations, and then re-erected a half dozen or more times.

What They're Used for

Often, however, it is known beforehand that a given building will be essentially permanent at a given location. This will most often be the case where relatively large buildings are concerned, such as diesel shops, freighthouses, etc. For such installations, some manufacturers produce standardized structural-framed, metal-panel-sheathed structures, similar to the type of construction commonly used for large manufacturing plants, such as steel rolling mills.

In making a survey to determine for what purposes railroads are using prefabricated metal buildings, Railway Age discovered that there are very few conventional uses to which they're not being put. For example, it was found that prefabricated metal buildings are in service as passenger depots; combination passenger and freight depots; freighthouses; bunkhouses for M/W forces; car repair shops; pumphouses; communications housing; passenger shelters; bridge tenders' houses; yard offices; stores department buildings; motor car garages; boiler houses; sand storage houses; crossing watchmen's shanties; and parts storage buildings.

At some locations, the use of metal-panel construction has been combined with contemporary frame, natural stone and brick construction to provide architectural attractiveness. All things considered—speed of erection, cost, versatility, appearance, and ease of maintenance—metal buildings have definitely "arrived" insofar as the railroads are concerned, and their use—and reuse—seem to be projected well into the future.

Railroading After Hours with Jim Lyne

BUENOS AIRES, ARGENTINA

SP AUTHORS—On the Southern Pacific, when officers retire, they don't just rest and go fishing—they become authors. Witness E. C. Poole, retired manager of transportation research, who had a challenging article on the proper pricing of piggyback service in a recent Railway Age. And now along comes a (McGraw-Hill) book entitled "Talk That Gets Results" by K. C. Ingram, who for many years headed SP's public relations activities.

In his later years on active duty "KC" became deeply interested in the broad problem of "relations" between people—especially between railroad people, because they were the ones he knew most about. As a result of his practical activity in such work, and his study of it, KC in 1949 produced a best-selling book entitled "Winning Your Way with People." This new book of his lies in the same general area but emphasizes "communication"—or how you can get other people to listen to and understand you, or the other way round.

KC has really dug deep in writing this book. He has, that is, delved thoroughly into all the studies by the scholars and researchers, and the result is a compendium which embraces at least some reference to just about everything anybody knows about the subject.

A RAILROAD BOOK—All of KC's book has its application to railroad work, of course, and a lot of it is derived directly from the author's experience as a railroad man. As practical a pointer as any it contains is contributed by KC's former chief, D. J. Russell. Here it is:

"There's no difficulty in putting out good clear messages to employees. The problem is to have the messages believed and accepted. Action speaks louder than words. The best way to such acceptance is for everybody in management to be fair in dealing with employees."

Parts of the book would qualify as out-and-out entertainment. For example, there's an anecdote by Hob Ferguson, consultant on human relations for the SP. Hob hails from the Ozarks. An overgrown pupil down there asked his teacher how to spell rat. The teacher gave him the spelling. "No," said the boy, "I don't mean mouse rat, I mean rat now." And there's another school story about the little girl who was asked who Socrates was. "Socrates," she said, "was a Greek who went around giving people good advice. They poisoned him."

A BEEBE & CLEGG BEAUT—Now that I've got all wound up talking about new books, I might as well make a day of it by throwing up my hat for Beebe & Clegg's "The Age of Steam"—a big new book with certainly as gorgeous a collection of railroad pictures as is ever likely to be made available (no diesels included). Although many of the pictures (mostly photos but some line drawings) are relatively recent, at least half of them date back a generation or more (some much more) ago. And no part of the country is neglected—South, West, or East.

There is lively text, too, to match the pictures. The authors belong to the antiquarian school of railroad fans, who have little liking for recent developments in railroading—which they call "a scheme of things that will lay no hold on the imaginings of generations to come."

As for me, I can read history and look at historical pictures avidly—without the least bit wishing those "good old days" were back again. Riding around on trains in the middle part of the country in summer time, with the temperature outside at 110 deg (and 10 deg hotter inside)—and getting my sweaty face and clothes covered with a coating of fine cinders—may have been romantic, but it didn't seem so to me at the time. It doesn't seem so to me now either. Interesting to recall, however; and Messrs. Beebe and Clegg make those days live again.

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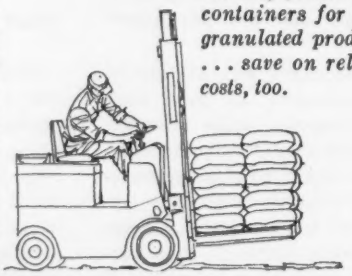
ORDERS 25 ADDITIONAL CARS!

OLD METHOD *Airslide Cars eliminate bags, drums and containers for dry, granulated products . . . save on related costs, too.*



NEW COST-SAVING METHOD *35-40 tons of Vinyl Resin at one time in contamination-free Airslide Car.*

UNION CARBIDE'S BAKELITE DIVISION has been making interplant bulk shipments in hopper cars for several years, and in 1955 supplemented the movement with fifteen 3600 cubic foot capacity Airslide® Cars. Bulk shipments of vinyl resins, particularly in Airslide Cars, provide savings and, equally or more important, their experience proved Airslide Cars deliver products free of contamination. That is why Bakelite, just one year later, ordered 25 additional Airslide Cars from General American Transportation Corporation to augment the cars presently in use.

You, too, like scores of producers of dry, granular products, can benefit with General American's Airslide Cars—"bulk ship" in complete confidence in contamination-free Airslide Cars—save on bags, drums or similar costly containers. You'll find . . . *it pays to plan with General American.*

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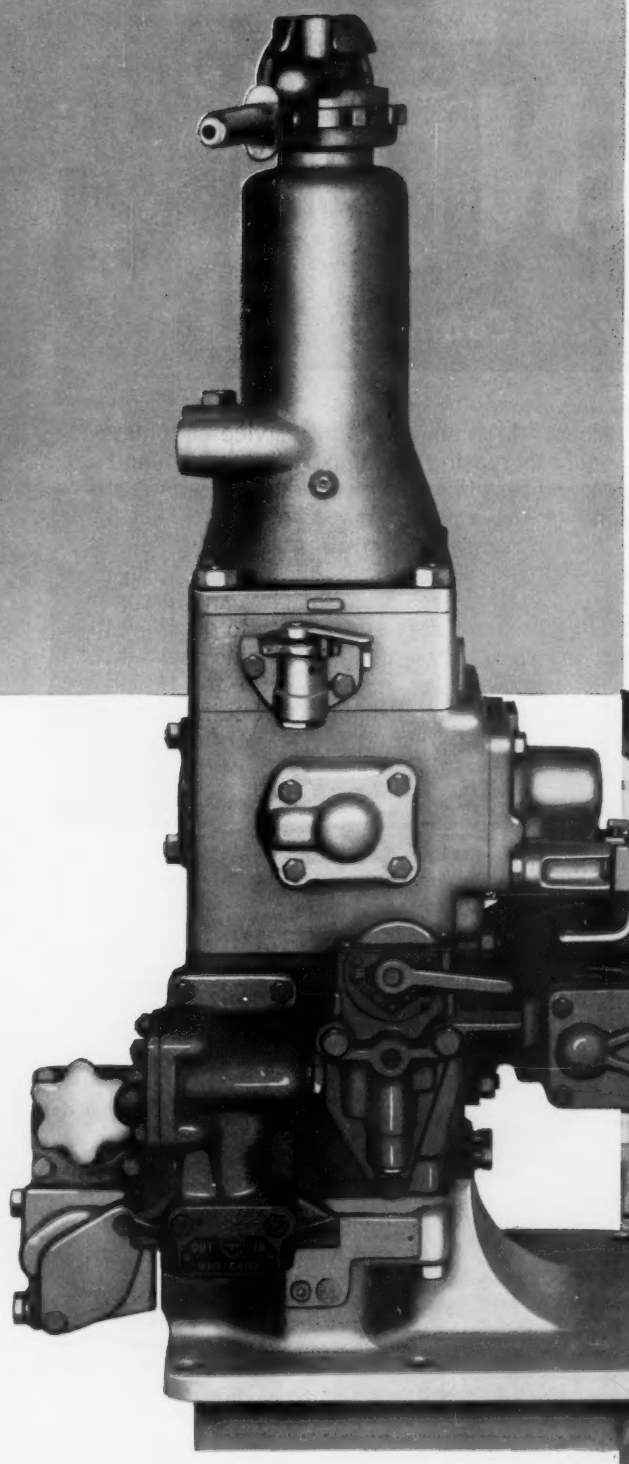
24RL–the road locomotive brake that can be kept modern



Sectional construction, as followed in the 24 RL Brake Valves, provides for the addition of new or improved functions merely by the substitution of sections. The advantage, of course, is that the brake equipment can be kept modern with minimum investment as compared to entire brake valve replacement.

The most recent improvement that can be provided in this manner is the brake pipe pressure maintaining feature, which offers pronounced improvement in train brake operation plus outstanding maintenance economies that develop from uniform distribution of braking pressure throughout the train.

This feature can be incorporated in any D-24 Type Brake Valve now in service by replacing the existing Filling Piece Portion with the Conversion Filling Piece shown in color in the illustration. Write for our Circular Notice No. 1130 which gives complete details.

Westinghouse Air Brake
COMPANY
AIR BRAKE DIVISION WILMERDING, PENNA.

HOLLAND VOLUTE SNUBBER SPRINGS

Upgrades ride by introducing an unusually smooth snubbing action with an exceptionally high load carrying capacity. Holland's principle of utilizing the sliding action of telescoping radially compressed coils eliminates the "wedging" problem.

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Volute Snubber Springs, Either 1⅝" or 2½" Spring Travel

2½" 1⅝"

STYLE E-2
Volute Snubber Spring, 2½" Travel—in 50-Ton Group

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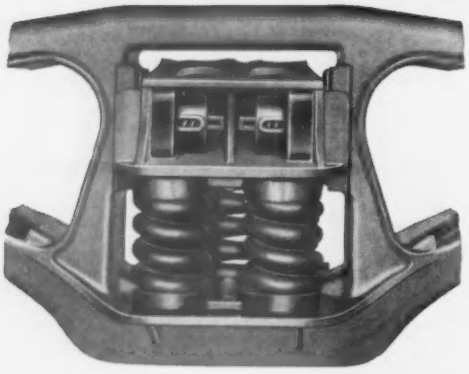
for the finest in Freight Car Truck Controls



HOLLAND BOLSTER CONTROL UNIT STYLE RS-2

An advance over all existing devices for upgrading freight car trucks to provide new truck riding qualities at a saving over new truck cost of 80%! A significant advance over the spring "package" method; utilizes the Holland principle of direct action, axially loaded members.

Modern high speed freight service is continuously increasing the importance of Holland's pioneering efforts and engineering accomplishments in the field of ride control. Whether for the **upgrading of existing trucks** . . . or for new trucks embodying the finest in proven control principles . . . Holland has answers that will increase safety and reduce to a minimum costly damage to equipment, lading and track. For complete information, write for Holland Bulletins, Holland Company, 332 South Michigan Ave., Chicago 4, Illinois.

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HOLLAND RIDE EASE TRUCK STYLE RE-2

Introduces a new, yet thoroughly proven built-in bolster spring control following the same basic principle of direct acting, axially loaded friction members so successfully employed in the Holland Ride Stabilizer unit RS-1 for finest 3 way control . . . viz.: vertical, lateral and longitudinal.

Why Cotton Belt Is All CTC

The benefits of centralized traffic control on long stretches of single track are being demonstrated on the St. Louis Southwestern. This railroad, which specializes in fast through freight, with close connections, shows how modern signaling permits trains to leave yards when ready to go, increases track capacity, and in general gets trains over the road on time. Its entire 628-mile main line is CTC-operated.

They needed more capacity

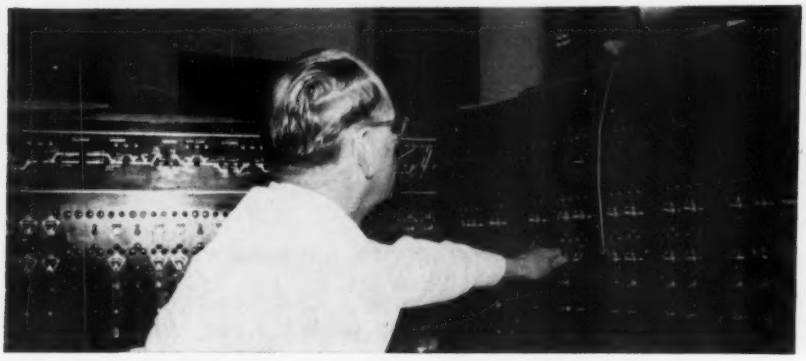
Prior to 1941, train movements on this railroad had been authorized by timetable and train orders, with no automatic block signaling. When faced with increased traffic, and the necessity to get trains over the road faster, the management, in 1942, made two important decisions. These not only proved to be correct but also were forerunners of recognized developments that are coming to the front today.

The first of these 1942 decisions was not to add second main track, but to increase the capacity of the existing single track. Observations made on other roads proved to the management that the installation of automatic block signaling on single track would improve safety but would necessitate continued use of timetable and train orders. Therefore, the second decision made in 1942 was to improve the single track by installing a complete system of centralized traffic control, including power switches and signals for authorizing train movements by indication.

This program has now been completed on the entire principal route mileage between Illmo, Mo., and Corsicana, Tex., via Pine Bluff, Texarkana, Mt. Pleasant and Tyler, totaling 628 miles. It is all single track except four short sections of double track totaling 17.4 miles.

Between East St. Louis and Thebes, Ill., 121 miles, the Cotton Belt and the Missouri Pacific operate jointly on MP tracks. The bridge across the Mississippi river at Thebes, and the tracks between North Junction, Ill., and Illmo, Mo., 4.5 miles, are owned jointly by the two roads. Between Illmo and Paragould, Ark., 110 miles, trains of both these roads operate on track owned by the Cotton Belt.

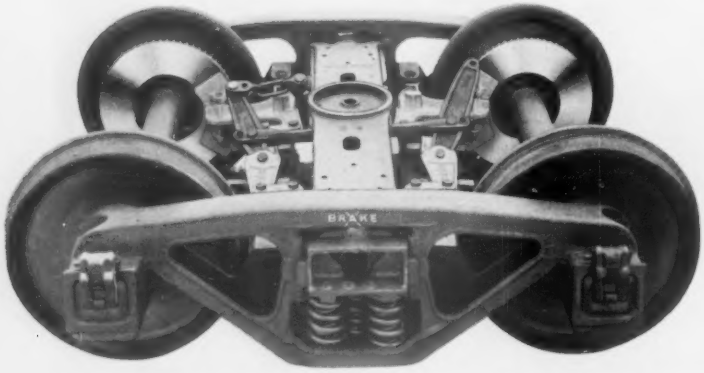
(*Continued on page 40*)



INDICATION LAMPS on the CTC control machines automatically show the dispatcher where all the trains are, and by setting his levers he controls . . .

. . . POWER SWITCHES and signals at sidings to direct train to make meets with no time lost for waiting.

1. SEE a Brake-X Truck just as it was removed from this, the first car in revenue service equipped with mechanical single disc braking. After 15 months of continuous, high speed service, this truck will be placed on exhibit just as it was taken from the car, without replacements or adjustments of any kind. *You* be the judge whether or not we are justified in claiming that a Brake-X truck will outlast any freight car that will ever be built.



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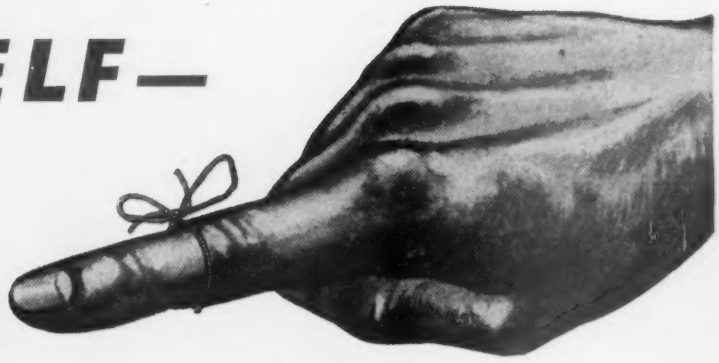
SPACE NO.

REMIND YOURSELF—



ABOUT 2 EXHIBITS YOU MUST SEE!

at the Allied Convention

HOTEL SHERMAN • CHICAGO • SEPT. 15 - 18

2. SEE Brake-X in action! Actual motion pictures of a Brake-X Truck taken through the open floor well of a D. L. & W. box car. A significant and revealing 15 minute action study of the world's most powerful and sensitive freight car braking system as it responds to every conceivable braking demand under high speed, main line operating conditions. The next best thing to riding a test car is to see this film of Brake-X at work.

BRAKE BEAM COMPANY

BUFFALO HAMILTON, ONT.

240-1-2-3 AND 290

HEAVY LINE shows CTC territory.

They got capacity with CTC

The Cotton Belt's first CTC, completed in 1943, was on 32 miles of single and 15 miles of double track between Illmo and Dexter Junction, where traffic had increased to 50 trains daily. Other sections were equipped with CTC as fast as practicable, preference being given to sections including grades. For example, on the 152 miles between Pine Bluff and Texarkana the railroad crosses four major rivers, and traverses hilly country with curves up to 4 degrees and grades up to 1.17 per cent. Here the second CTC project was completed in 1945.

Because of shortages of men and materials the program had to be delayed. But in 1952 CTC was completed on 68 miles between Pine Bluff and Brinkley; in 1953 on 84 miles between Dexter and Jonesboro; in 1954 on 60 miles between Texarkana and Mt. Pleasant; in 1955 on 68 miles between Mt. Pleasant and Tyler; and in 1956 on 75 miles between Tyler and Corsicana.

This program is evidence that CTC has accomplished the results foreseen by the management of this railroad in 1942, when it was decided to improve the existing single track by installing CTC.

A Fast Freight Line

The Cotton Belt specializes on fast reliable freight service. The "Blue Streak," a fast freight leaving St. Louis each evening, gives next day delivery in Fordyce, Camden, and Texarkana, and second morning deliveries in various cities in Texas, including Dallas, Fort Worth and Tyler.

The overall schedule time for through freights either way on 628 miles between Corsicana and Illmo is 20 hours. The maximum permissible speed for freight trains is 60 mph.

In 1942 the Cotton Belt operated several passenger trains and two local freights, as well as numerous through freight trains, in the Illmo to Corsicana territory, with maximum traffic ranging up to about 50 trains daily on the Illmo to Dexter Junction section.

How Traffic Has Changed

Now, passenger service has been reduced to one train each way daily between St. Louis and Texarkana. On most of the territory between Illmo and Corsicana a local freight is operated each way daily except Sunday. About 16 through freights and extras are operated daily between Illmo and Dexter Junction; about 12 between Dexter and Paragould; about 10 between Paragould and Texarkana, and 8 between Texarkana and Corsicana. Thus the number of trains daily ranges from about 20 between Illmo and Dexter, to about 10 or 12 between Tyler and Corsicana.

The CTC on this railroad includes power switch machines and complete arrangement of dispatcher controlled signals at both ends of all sidings that are regularly used for meeting and passing trains. Intermediate automatic signals are spaced from 2 to 8 miles apart for following trains.

Numerous changes were made in sidings. Those that were to be equipped with power switches were lengthened to capacities ranging from 120 to 160 cars. New No. 16 turnouts, including 30-ft points, were installed at both ends of these long sidings so that trains could enter or leave at speeds up to 30 mph. Short sidings, not needed with CTC, were either removed or converted to spurs for serving industries.

Sidings Are Signaled

Prior to installation of CTC, this railroad had several lap siding layouts. Studies indicated that, with CTC, there would be very few instances in which lap sidings would be used effectively to hold two trains while a third passed. Considering the fact that two additional switch machines and signal layouts as well as new No. 16 turnouts would be required, the lap sidings as such were eliminated. Tracks were arranged to connect the sidings through as one long siding.

Track circuits were installed on sidings, not only to control the signals directing trains to enter, but also to control track-occupancy indications on the control machine, so that the dispatcher knows the location of trains when on sidings.

When a power switch is reversed for a train to enter a siding that is unoccupied, the signal is cleared to display the red-over-yellow aspect, and at the same time the approach signal displays the flashing-yellow aspect. Thus the engineman can bring his train up to the siding and enter at 30 mph in confidence, knowing that the siding is unoccupied with the entire length in which to stop. This practice saves much precious time, especially when making close meets.

On the Cotton Belt, if a siding is occupied by a train of the same direction, the entering signal can be cleared to display the red-over-lunar aspect. If the siding is occupied by an opposing train, the entering signal cannot be cleared.

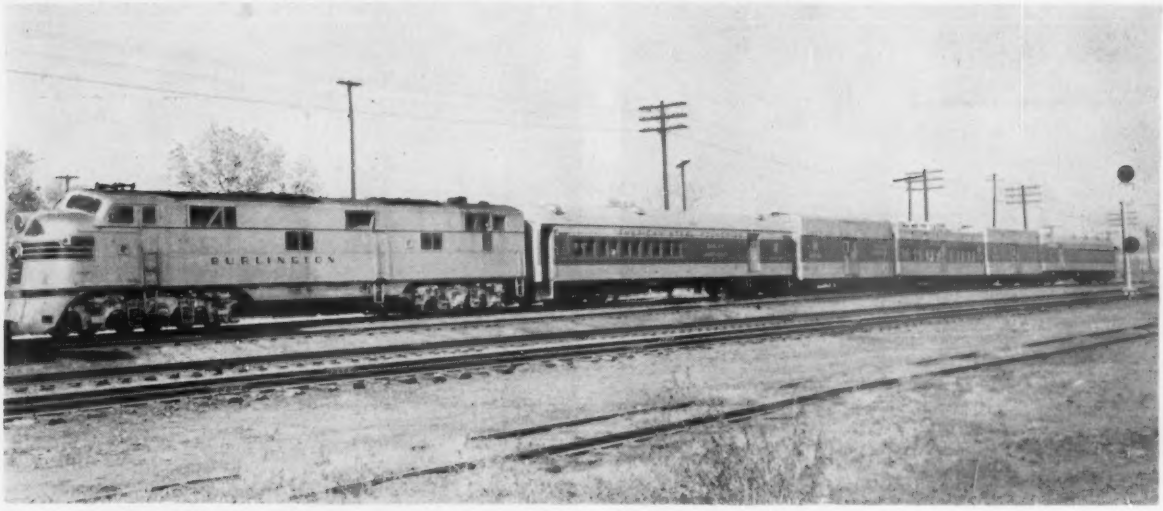
The CTC control machines for the 426 miles between Illmo and Texarkana are in the dispatcher's office at Pine Bluff. The CTC control machine for the 202 miles between Texarkana and Corsicana is in the office at Tyler.

Telephone service between the dispatcher's office and the various phone booths at switches along the CTC territories was secured by superimposing, on the two CTC line wires, a system of frequency modulation carrier which ranges from 45 kc to 65 kc, between Illmo and Texarkana. Thus, without adding to the number of line wires, this phone circuit extends to 165 booths and offices north of Pine Bluff, and to 96 booths or offices south from Pine Bluff to Texarkana. To minimize interference of the phone circuit, the two line wires are transposed to 30 kc.

These CTC projects on the Cotton Belt were planned and installed under the direction of B. J. Alford, signal engineer; the major items of signal equipment were furnished by Union Switch & Signal Division of Westinghouse Air Brake Company.

How StLSW Benefits from CTC

As compared with previous timetable and train order operations, according to Cotton Belt operating officers, centralized traffic control has these important advantages: (1) On a subdivision of 100 to 110 miles, each freight train saves an average of an hour or more; (2) capacity of a single-track railroad is increased about 80 per cent; (3) trains can depart from yards promptly when ready; (4) trains received behind schedule can make up time, without delaying other trains; and (5) CTC increases safety.



ASF TEST TRAIN on the CB&Q in 1956. First and last cars of train act as buffers to isolate test cars from each other, the locomotive and other outside disturbances. Instrument car is between the two freight test cars.

ASF Research: Teamwork Is the Key

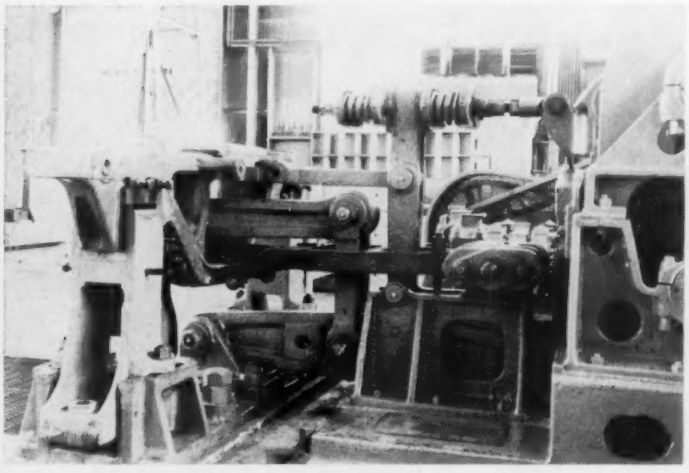
American Steel Foundries puts into practice its firm belief that "Research is Everybody's Business," because the company has found that if this is not practiced there are no results. The corporate climate is one that fosters the search for knowledge in all areas, with the conviction that only this added knowledge can bring progressive development.

The two divisions of American Steel Foundries which formed the principal activities of the company before diversification took place almost five years ago are the Transportation Equipment Division and the Hammond Division. Together, they support an active metallurgical research laboratory at Indiana Harbor, Ind., a product development group and physical testing laboratory at Granite City, Ill. The two laboratories are separate and distinct, covering a wide range of research and development work, but a great deal of cooperation exists.

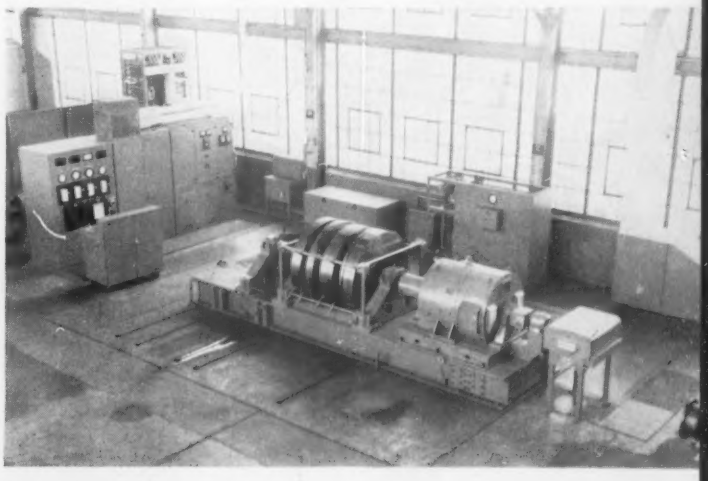
Both the research laboratory, headed by John A. Rassenfoss, and the product development group, headed by Russell C. Taylor, are housed in buildings which existed prior to the formation of the laboratory and organization. The research laboratory has been increased in size several times during the past few years. Personnel are recruited from universities, and some are organization channels.

In line with the ASF belief that research is everybody's business, a number of projects are definitely outlined, with (*Continued on page 46*)

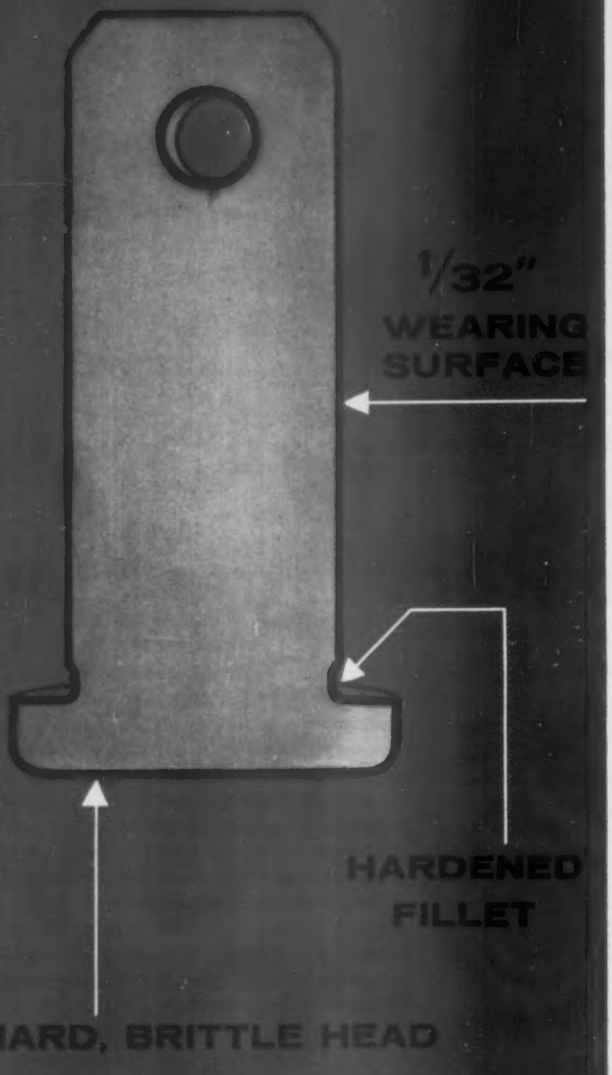
SIDE FRAME fatigue testing machine developed by ASF. Vertical, horizontal and twisting loads are applied individually or simultaneously, to meet AAR specifications.



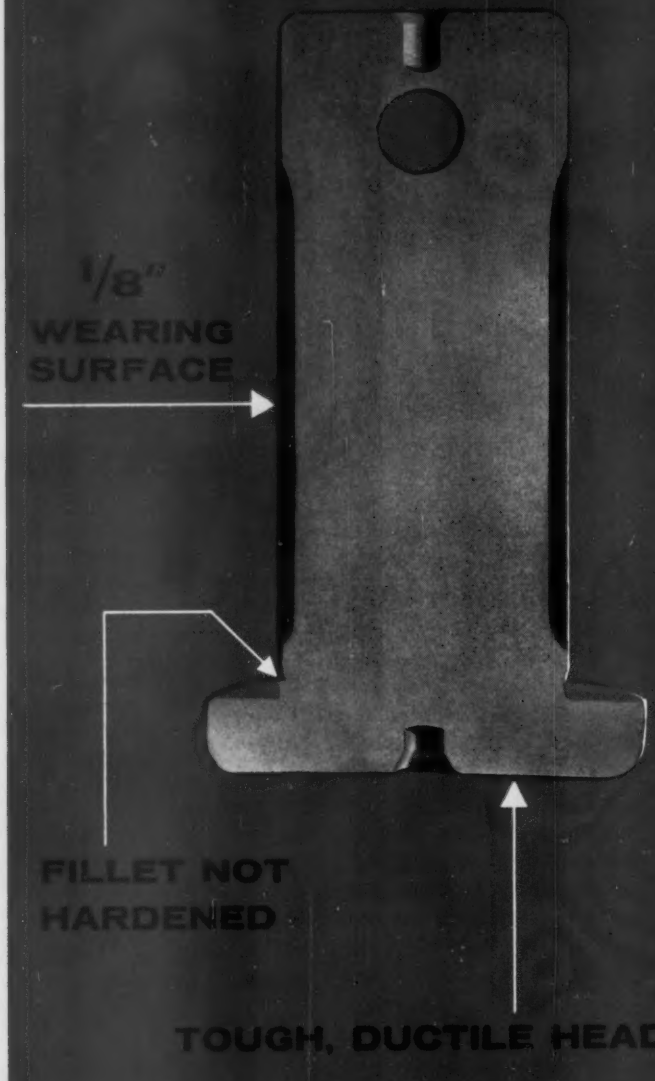
LARGEST CAPACITY machine designed for testing all forms of friction brakes is equipped with 350 hp motor. Control panel at left enables operator to repeat cycles indefinitely.



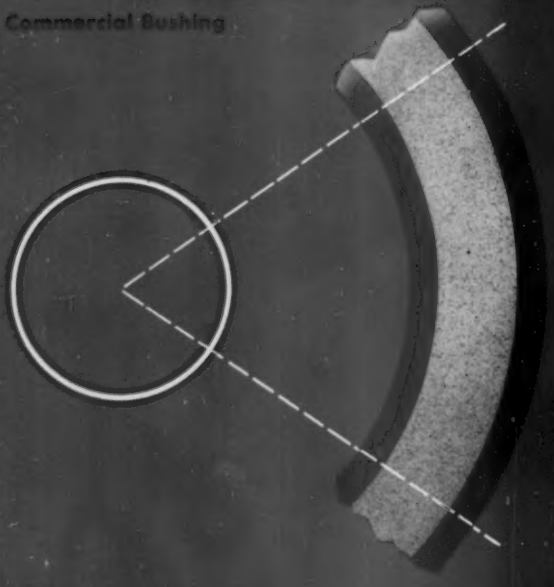
COMMERCIAL QUALITY



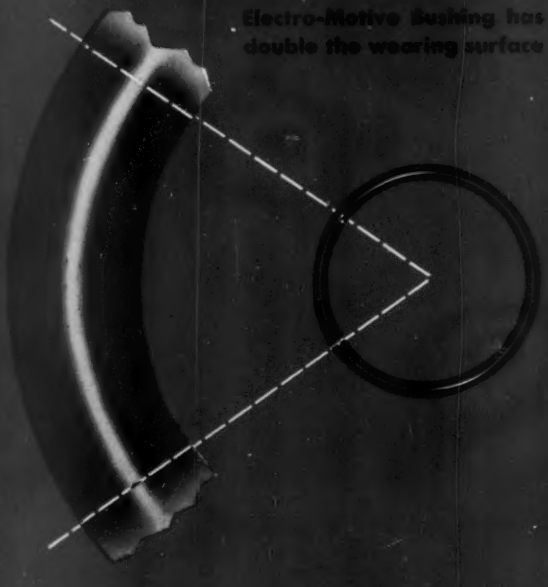
ELECTRO-MOTIVE QUALITY



Commercial Bushing



Electro-Motive Bushing has double the wearing surface



Longer lasting . . . cost no more!

Why Electro-Motive Pins and Bushings cut replacements costs

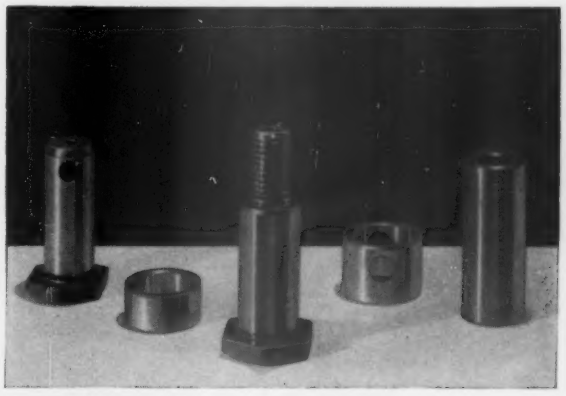
Compare the photographs at left and you will see why Electro-Motive Pins and Bushings—on depth of wearing surface alone—will give you much longer service life.

Note on the Electro-Motive Pin the wear-resistant surface runs only on the shank. This is purposely done because a pin must perform two functions: provide a bearing surface for the bushing and withstand severe shocks both from installation and service.

Thus, on the Electro-Motive Pin, the shank has a hard, deep bearing area while the head and threads are left ductile for better shock absorbing qualities, longer life.

Make a comparison in your own shops. Ask your Electro-Motive representative for a sampling of EMD Pins and Bushings for inspection and testing. You will see why the special hardening process employed in the manufacture of these parts brings extra service and savings at no extra cost.

Induction hardening makes the difference. In the induction hardening process, pins are passed through a high amperage electric induction coil which quickly heats them to optimum temperature. Water spray quickly quenches to eliminate distortion and scale.



Fast delivery from nine on-line warehouses. All nine of our warehouses carry stock of these pins and bushings in both current and fast-moving classifications.

La Grange, Illinois
Jacksonville, Fla.
Minneapolis, Minn.
North Salt Lake City, Utah
Los Angeles, Calif.
Halethorpe, Md.
Robertson, Mo.
Ft. Worth, Texas
Emeryville, Calif.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS
LA GRANGE, ILLINOIS
HOME OF THE DIESEL LOCOMOTIVE
In Canada: General Motors Diesel, Ltd., London, Ontario

GENERAL MOTORS LOCOMOTIVES

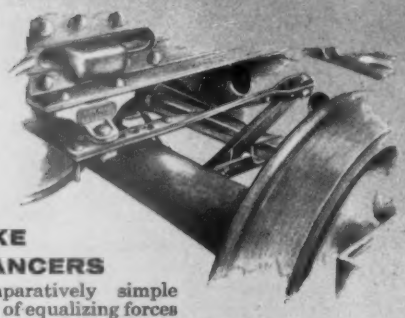
Since 1912

LEADERS IN RAILWAY APPLIANCE PROGRESS

Experienced in Design and Manufacturing of Specialized Products

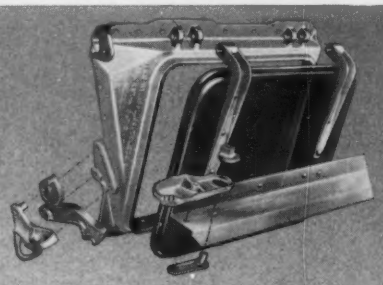
The nation's railroads are noted for many great transportation achievements . . . one of the most important being the efficient handling of the country's heavy bulk freight.

Since 1912, The Wine Railway Appliance Company has designed and manufactured many of the important parts of hopper, gondola, flat and box cars that make this handling function possible, as well as profitable, for the owners and users of the cars. In the years ahead, Wine will continue, through its experience, engineering know-how, and manufacturing skills, to keep pace with the needs of the railway industry.



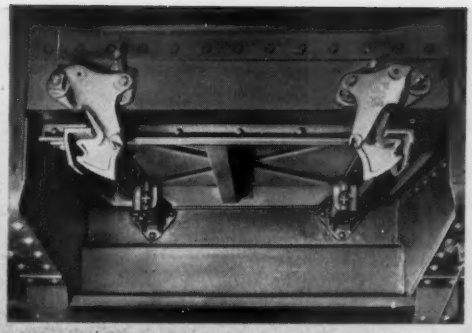
BRAKE BALANCERS

A comparatively simple method of equalizing forces and "balancing" the conventional brake arrangement by replacing the dead lever connection to the truck bolster with the Wine Balancer—connected to the car underframe. A bracket and connector at each end of the center sill flange, engaging the dead lever, balances the brake forces by returning them to the underframe of the car.



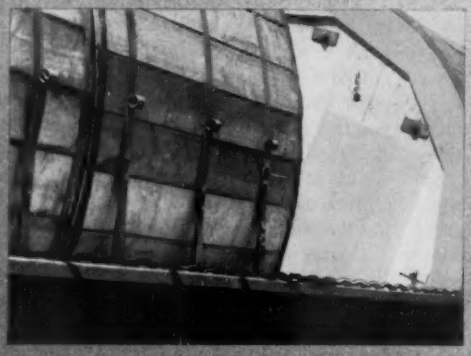
CORRELATED HOPPER UNITS

The one-piece, cast steel frame unitizes each individual hopper into a structurally sound, functional assembly which assures positive door fit. The adjustable locks, cast steel hinges, and symmetrical tapered door flange make possible the *only* adjustable door fit permitting compensation for wear or common irregularities of construction. "Balanced" unloading is assured by dual door operation and a method of controlled flow.



DROP BOTTOM SPRING HINGES AND ADJUSTABLE LOCKS

Drop Bottom Gondolas equipped with these two Wine products provide the shipper and receiver of the lading with a positive closure and afford a fast, economical one-man operation, with selective single or multiple opening of doors.

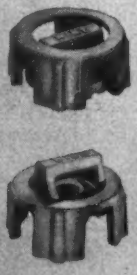


CONTINUOUS LADING BAND ANCHOR

Wine's continuous offset bar for top-coping applications provides a secure anchor for lading bands every 7½ " of its entire length. Permits the use of all types of banding material.

DROP END LOCKS AND END BALANCERS

The *complete* drop end combination from operating and security standpoints! Interlocked corners provide rigidity to keep the sides from spreading under load. The balancer incorporates the hinge function . . . permits a one-man, time and labor saving closure.



UNIVERSAL LADING BAND ANCHORS

Easily applied on all flat cars and gondolas, the Wine Universal Type Anchor features 360° rotation for tie-ins from any direction. Versatility of use permits welding on coping at important locations as well as mounting in the floor. Drop flush when not in use.

ADJUSTABLE HOPPER DOOR LOCKS

The adjustment feature allows compensation for construction differences and readily permits adjustments necessitated by wear. Wine Adjustable Hopper Locks are adaptable to built-up, structural hopper openings as well as cast steel frames.

ASF's Research Philosophy

Because of conditions peculiar to the railways and the supporting supply industry, it is recognized that development is relatively slow and is generally evolutionary rather than revolutionary.

Research and development activity carried on by a railway equipment company is often judged solely by the products or product lines which it introduces and maintains. Furthermore, the results obtained are more often than not of such a nature that gains are seldom retained in a proprietary fashion.

But acceptance of this fact of life must not be a deterrent, for in the final analysis, whatever is good for the railway industry is good for those who supply it. Leadership carries with it the obligation to sacrifice some short-range gains for one for the long-time good for all.

(*Continued from page 41*)
stated objectives, and a simultaneous approach is made by all groups, closely coordinated by the heads of the interested departments. Sometimes the research or project engineer is given considerable leeway in approach to a solution. Occasionally an idea will be "sparked" as a result of other research being done and this tangent can be worked upon by the researcher with his superior's approval.

Truck design

An example of research and product development which, as a result of its acceptance, might obscure the overall contribution of the company to the railroad industry, is the perfection of the A-3 Ride Control truck. The introduction of this truck may be considered a relatively recent improvement in freight car trucks since it is said to be the first time the constant-friction principle and long travel springs were incorporated in a truck to provide improved riding qualities. Many of the problems were solved in the laboratory.

The search for basic knowledge on truck performance by Professor Endsley about forty years ago resulted in the design and construction of what is reported to be the first side frame fatigue-testing machine. Today it is the standard method of evaluating the suitability of a truck side frame for carrying service loads safely. Contributory work done by ASF's metallurgical research groups was in developing materials and processes to insure quality of product.

But even the most extensive laboratory tests will not prove that a truck design meets the ultimate requirement of riding quality necessary to protect lading and car structure. Laboratory testing culls the "bad actors." Field testing must be resorted to for a true evaluation of truck performance.

Conducting comparative truck tests in the field requires several test cars, an instrument car, and two cars to isolate the test facilities from the rest of train. ASF designed and built all of the special test equipment required to learn the facts of riding quality exhibited by experimental trucks under actual cars. This equipment to date has traveled some 200,000 miles, and has been used by several railroads as well as the AAR.

The laboratory and field research which resulted in the A-3 truck also showed that something drastic had to be done to the conventional AAR truck and spring group if older cars were to operate successfully at higher freight train speeds. Research and development came up with the ride control spring package group, which incorporated the A-3 ride control principle and is directly applicable to most old trucks.

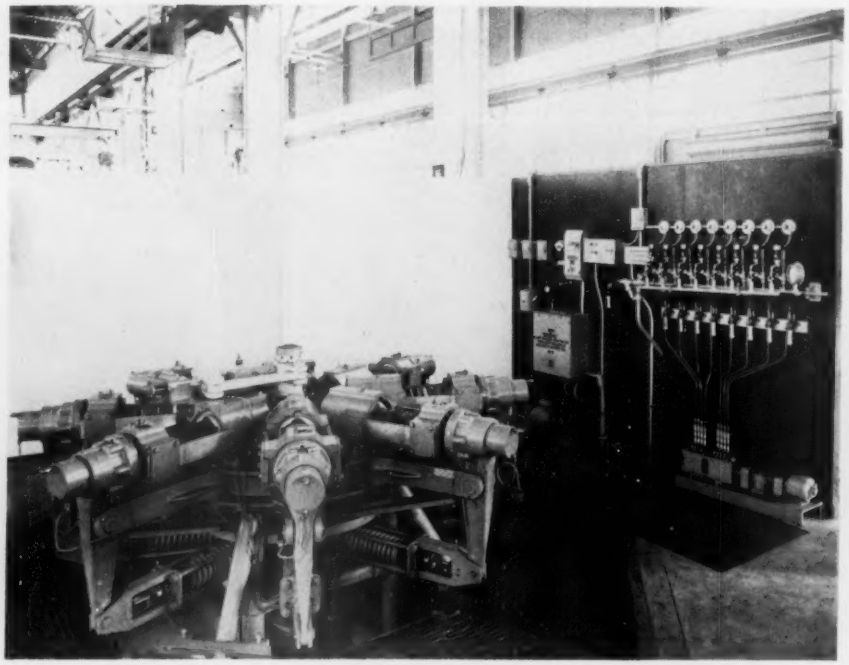
Metallurgical research has had its part in product development. In the A-3 truck, this work consisted of a series of studies to improve the wear and friction characteristics and durability of the friction shoe.

Spring design

About ten years ago, a series of studies on spring design pointed out the need for basic knowledge of the fatigue-life characteristics of hot-wound coil springs of the type used under freight and passenger cars and diesel locomotives. ASF designed and built an eight stage spring-fatigue-test machine. It was soon learned that for longer effective spring life control of the heat-treating processes must be improved, and the response of each heat of steel to hardening must be known prior to processing. It was learned also that scaling of the bar during second heating resulted in detrimental non-uniform hardness when quenched.

Development began anew with the acquisition of a shot-peening machine to learn about the effect of this procedure on hot-coiled springs. It was demonstrated that early failure of these springs could be prevented and average life extended many times by properly controlling the shot-peening process.

During this time, the metallurgists were studying the control of processes to improve the final product, their reasoning being that a spring clean of scale at the time of quenching would have more uniform hardness. Further, proper control of temperature of quenching medium and



DYNAMIC SPRING testing machine tests eight springs simultaneously in working range. Machine is equipped with hydraulic follow-up to compensate for set.

"There's no weeds and brush to hide in anymore . . . they've killed 'em with Chipman chemicals!"

Chipman chemicals and application service are backed by 45 years of railroad experience. An extensive line of weed, grass and brush killers is available to meet varying conditions. Included are:

Atlacide	Chlorea	Brush Killer
Atlas "A"	Chlorax	Telvar W
Atlas "D"	TCA	Borax

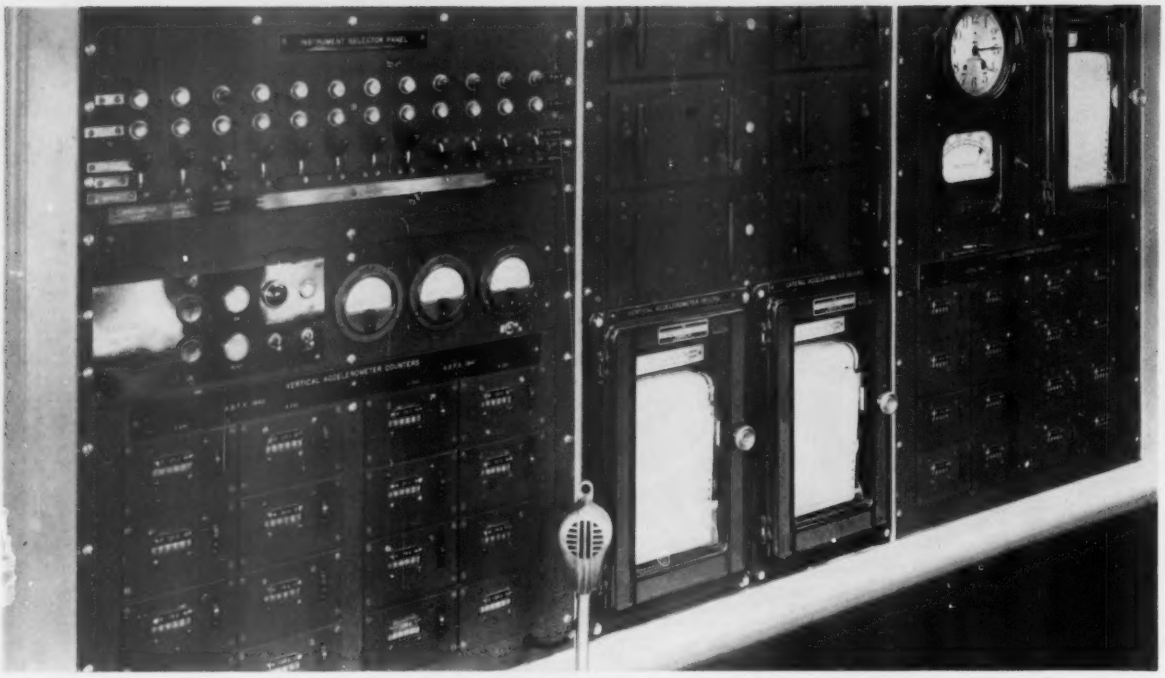
Let us solve *your* weed problems with the *right* chemicals and application service!

CHIPMAN

Chemical Company, Inc.

Bound Brook, New Jersey

17 Strategically Located Chipman Plants



RIDING QUALITIES of trucks on ASF test train are accurately measured by lateral and vertical accelerometer counters on panel instrument car. Panel also contains selective electrical circuits for various types of tests, air gages, clock, speedometer and public address and telephone system.

adequate circulation would give required hardness in carbon steel.

Why not quench directly from the coiling operation when the bar was free of scale? Tests showed this could be done if the temperature at the time of quenching was held within a narrow range. This was accomplished by a radiant type of pyrometer. The last hurdle was to control the bar-heating furnace to insure proper micro-structure in the finished spring. The end result of an extended-life spring was an indicated fatigue life of five times that of ordinary double-heat-treated springs.

Other new products, after several years of research and development, are now being introduced by ASF for the first time. These are a rotor brake for freight cars, a package brake for subway and suburban cars, and a 24,000-lb capacity cast steel unit brake beam. Brakes for off-the-road vehicles, a rotor brake for crawler tractors, and a liquid-cooled brake for off-the-road vehicles which is currently under tests, are among recent research projects.

New Composition Resists Shock

A study by the research department, and this can be classified as pure research, is one aimed at finding a cure for "brittle fracture" experienced in welded ship construction during World War II. While the brittle failures were confined to welded rolled steel plate, it was recognized that a solution to the problem might be extremely valuable to the foundry industry.

In May of this year. ASF announced the introduction of a new composition, tentatively called Modified Grade B Steel, which is a result of many years of study. Resistance to shock loading under low temperature service conditions has been established as an advantage of this new steel composition.

This is of great importance to the railroads, since increase in travel speed and loading has caused increased failures of Grade B components during winter months. Accurate records kept by one railroad over a five year period showed 20 cast Grade B steel truck member failures from January 1, 1952, through June 1, 1956. Ten failures occurred during a twelve-month period since June 1955, when the railroad increased the top speed of its time freights to 60 mph. Eighty-five per cent of the failures occurred during the months of November through February, the coldest months of the year. The greatest individual monthly totals occurred during November and February when the frost is entering and leaving the roadbed, causing abnormally rough riding conditions, which subject truck members to severe shock loads.

Modified Grade B steel, which has physical properties exceeding requirements set up in AAR specifications M-201, offers many advantages also to the aircraft, automotive, maritime and mining fields.

Its benefits include (1) increased resistance to brittle fracture through improved impact characteristics and reduced possibility of hot tears in castings; (2) surface hardening of areas of local wear would be more effective than with ordinary Grade B steel; and (3) ready weldability for castweld fabrication of members and ease of repairs.

An important cog in the ASF organization is its sales personnel. They are all trained engineers, and their understanding of customers' problems has in numerous cases enabled presentation of ideas which in turn have led to perfection of design through research and development. Conversely, when research is undertaken as a result of manufacturing problems, the results are quickly placed in the hands of the sales people.

The research and development staff works in widely scattered fields. ASF has twenty-six plants in seventeen states and Canada, with such diverse products as machine tools, hydraulic equipment, steel and chilled iron wheels, roller chains and sprockets for conveyor and power transmission, and wrapped and coated steel pipe for the gas and oil industries.

While ASF puts emphasis on its metallurgical research laboratory and product development group, the developments of the past and those of the present are the result of teamwork of the entire organization and much joint study by the railroads and industry. Moreover, cooperative research programs are sponsored through the Steel Founder's Society at a number of universities. The facilities of Armour Research Foundation, Batelle Memorial Institute, and others are called upon to assist in finding solutions to perplexing problems.

Current OPERATING DEPARTMENT Questions

How inefficient are winter operations?

As every railroad man knows winter operations generally are less efficient than those performed during the summer months. There are many reasons for this state of affairs. However, I had never heard of anyone trying to measure this difference in efficiency, until recently, that is. However, tucked away in the proceedings of the 1956 meeting of the American Association of Railroad Superintendents were some words on this subject from *E. B. Harwig*, superintendent of the Alton & Southern. Mr. Harwig stated that he had found his daily average winter operations required "approximately 8 hours of straight time additional, and approximately 15 hours more overtime." I don't know whether this was man or crew hours, and I assume this was to handle roughly equivalent number of cars. Has anyone else made such measurements?—*G. C. R.*

A substitute for unprofitable intraterminal switching?

A reader has suggested that, since the railroads frequently point out the unprofitability of intraterminal switching, where no revenue from road haul service offsets switching costs, they should try something to make such service profitable. He suggests that since so many roads now are engaged in piggyback service they might want to consider trucking in lieu of intraterminal rail service. He points out that for years the carriers at some cities, notably St. Louis, have been trucking LCL from their stations to those of connecting lines. He also pointed out that at New York trucking increasingly is being used in place of lighterage service.

We asked a number of railroad men to say what they think of the possibility of trucking in lieu of such switching. Here are some replies, including one from a representative of a Chicago road who asked that neither he nor his railroad be identified. My correspondent who desires to remain anonymous wrote:

"Between 400 and 500 trucking companies are engaged for hire in the handling of business in the Chicago area, both interdistrict and over the road. A large number of these are also engaged in the handling of LCL pickup, delivery and transfer service for the railroads. I do not, however, know of any that are engaged in handling carload interterminal switching for the railroads.

"I assume that the New York roads using truck service in lieu of lighterage control the traffic and employ a trucking company to perform the service. In this regard it is very much the same as LCL pickup and transfer work in the Chicago area. Whether or not the transportation cost of handling this LCL freight in the Chicago area by highway vehicle is cheaper than rail transportation is debatable. The handling, however, is more expeditious than rail movement in transfer service between carriers or between industry and carriers' freighthouses.

"With industry having between 400 and 500 trucking concerns offering their service for the handling of switch district business, particularly on traffic that is attractive to them, I do not believe the entrance by the railroads into this trucking field in competition with such truckers would offer any advantage to the shipper and certainly not any profits to the railroads."

Would truck service be cheaper?

The Central of Georgia's president and general manager, *W. E. Dillard*, in commenting on our question, wrote:

"Such switching is certainly unprofitable to the railroads when all costs are considered. The Central of Georgia does not have any appreciable movements of this character except at Atlanta and Savannah. We have not given any thought to the use of some other form of service, such as truck or tractor-trailer. However, we have for many years transferred LCL freight by truck from our freight depot to the freight depots of connecting lines at all junction points. This service is performed by contract trucker. It does not now amount to a great deal with the decline in LCL business.

"It is my thought that if the service referred to by you could be performed by a trucking company or by our patrons at or around the cost of switching service, our patrons would arrange for such handling instead of movement by cars. I do not think it would be economical for us to provide trucks for such movement due to the irregularity of the movements, and furthermore many of them would have to be made through congested city traffic.

"We have one industry at Savannah, the American Cyanamid Company, which receives cargoes of titanium slag from ships berthing at the State Port and trucks it to the plant, a distance of about 10 miles through the city. This is probably a stopgap arrangement, as they contemplate providing their own dock at their plant, which is located on the river. There has been some complaint of this trucking through the city, and especially during the morning and afternoon hours when other traffic is very heavy.

"We do not know of any appreciable use of trucks by shippers and receivers of freight in lieu of intraterminal switching, and I doubt if there will be as long as it is more economical to use freight cars except in some unusual conditions."

Apparently my correspondent's idea was not such a good one, in spite of the fact that his information as to the unprofitability of the service seems to be sound. However, the president of a terminal switching line informs me that his railroad handles a lot of this business. Therefore, if purely switching moves are unprofitable, such service must be provided almost solely as an accommodation to firms which are large road-haul shippers.—*G. C. R.*

CONDUCTED by G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, Railway Age, 30 Church Street, New York 7.

Studs for NELWELD process machined from Youngstown cold finished bars

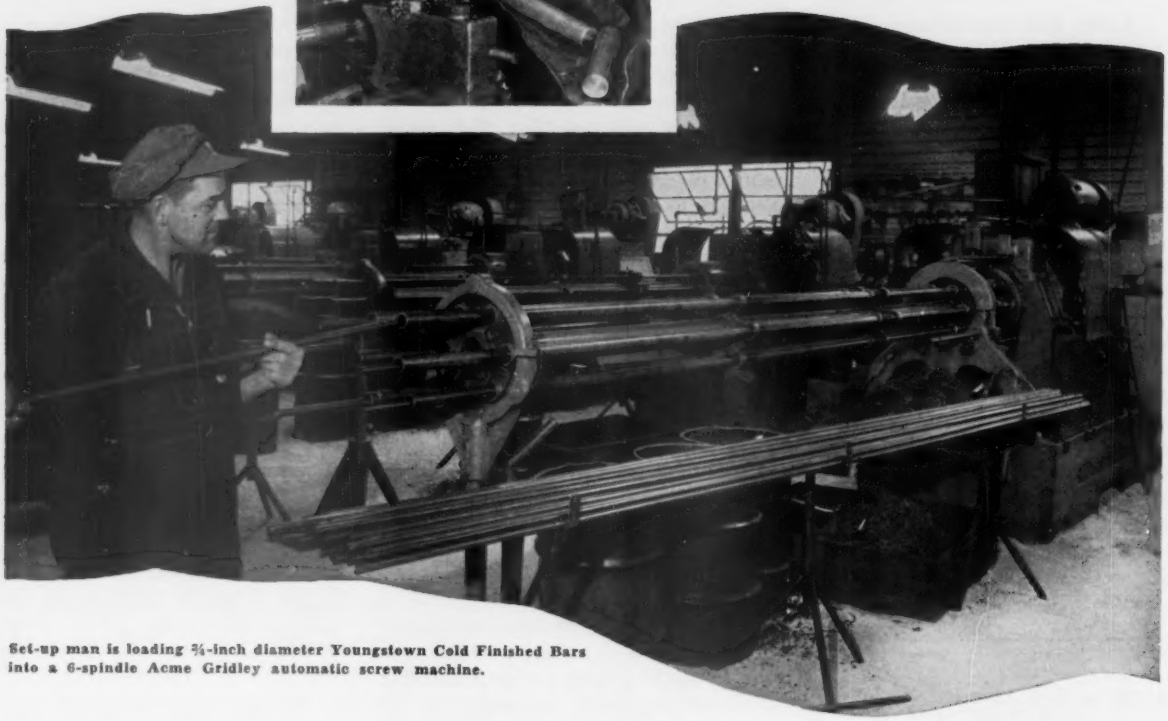
Progressive fabricators rely on the Nelweld method for fast, dependable end-welding of studs to steel surfaces. This novel electric arc process—utilizing flux-filled steel studs—substantially reduces direct fastening costs when used to replace conventional time-consuming methods such as drilling, tapping, hard welding, through-bolting or the securing of straps and rivets.

To maintain their world-wide reputation for product quality and uniformity, Nelson Stud Welding, a division of Gregory Industries, Inc., uses Youngstown Cold Finished Bars as the basic material for stud production.

Youngstown Cold Finished Bars provide high machinability and greater uniformity of composition, structure and surface finish to help you increase production of more uniform parts. Always specify Youngstown—it's your best assurance of quality.

Why not call or write your nearest Youngstown District Sales Office today for additional information or metallurgical assistance?

Close-up of studs being bored to accomodate their charge of flux (top collet) and then cut-off (center collet). Two finished Nelweld studs, shown in the pan in foreground, were machined simultaneously in the 6-position machine. First operation—feed out and face; second—bore; and third—cut-off.



Set-up man is loading ¾-inch diameter Youngstown Cold Finished Bars into a 6-spindle Acme Gridley automatic screw machine.

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Manufacturers of Carbon, Alloy and Yoloy Steel
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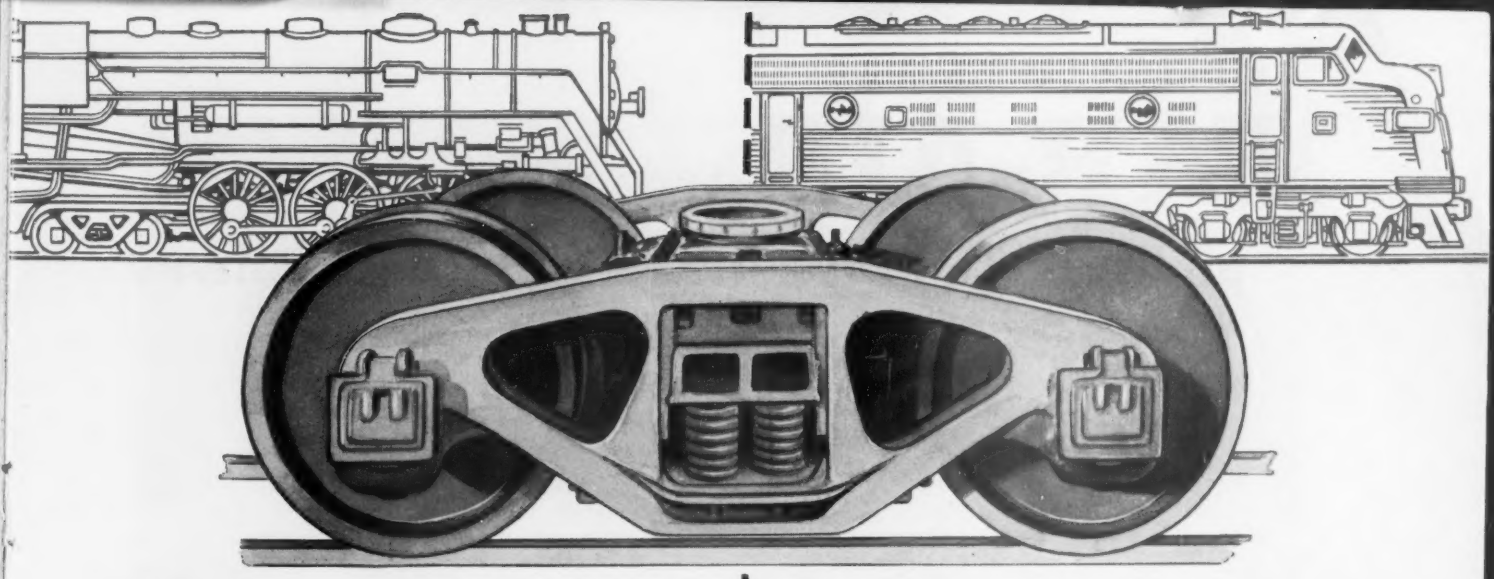
Cold finished bars



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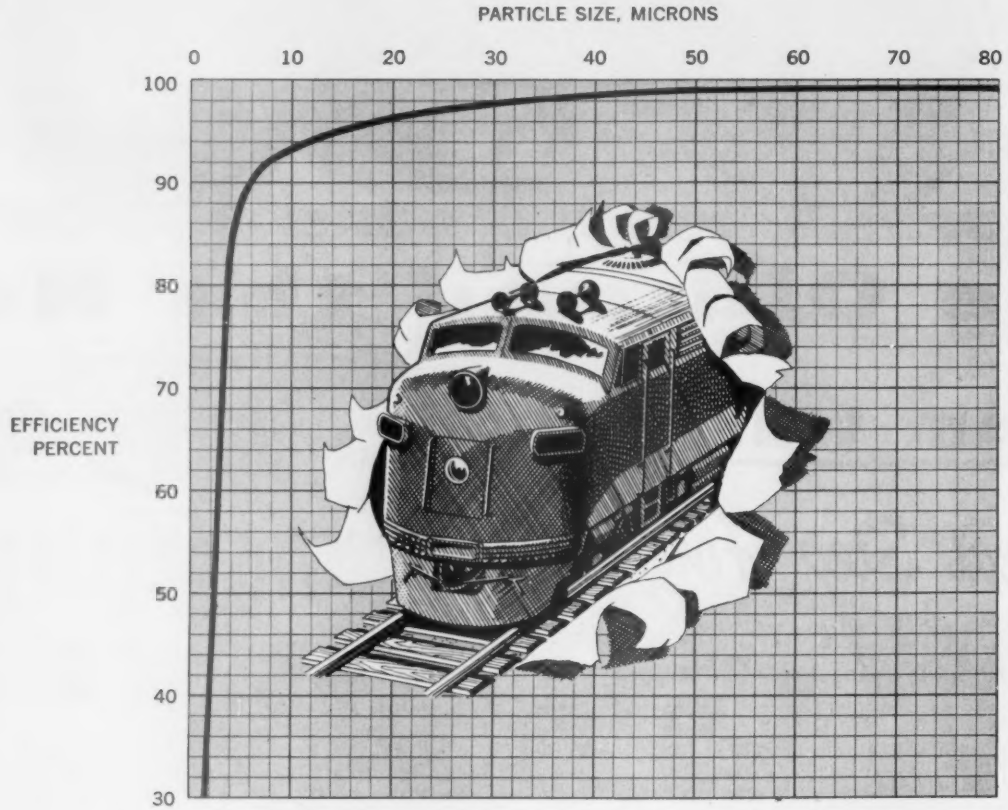

Chart showing the efficiency of the Type 48RH filter in relation to particle size.

For years Far-Air filters and other Far-Air products have been standard equipment on most of America's railroads. Far-Air Type 48RH filters were specially designed to withstand the severe operating conditions encountered in the railroad industry, and they have been recognized by both locomotive builders and users as the ideal answer to efficient car body air filtration. Millions of miles of on-the-job testing have proved that these filters operate more efficiently under all operating conditions, last longer between cleanings, require less maintenance, and have a longer service life.

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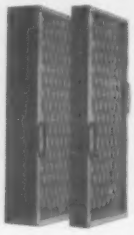
There is a Farr Company representative near by who will be pleased to consult with you on all your air filtration problems.



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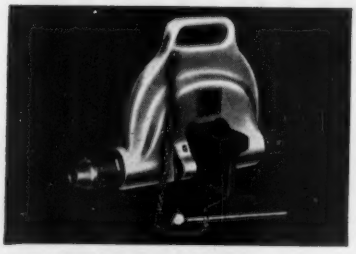

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Takes only an instant to punch clean, smooth hole for track bolts or rail bonds. Needs no electricity, compressed air, hydraulic power; operates from small blank cartridge; no open flash or recoil. Only one major moving part, the piston.

MECO POWER RAIL LAYER

Makes new records in Time Saving! This machine greatly speeds up the laying of rails of every weight and length. Makes new records in Economy! The Meco Power Rail Layer is inexpensively operated by a standard 4-cycle power unit, usually with a machine crew of 3 or 4 men.

A Meco easily sets in the rails for a large gang of 100 men or more. And—the first cost is only a fraction of that for other rail laying machines.

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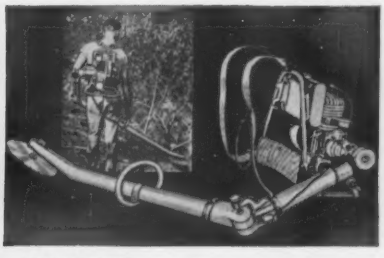
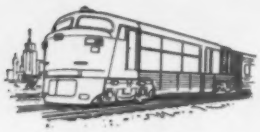
MECO RAIL AND FLANGE LUBRICATOR
Doubles to quadruples curve rail and locomotive wheel flange life, by reducing friction between rails and wheel flanges on curves. Also makes possible higher speeds with greater safety.

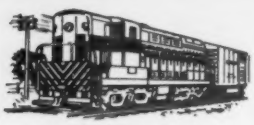
MACK REVERSIBLE SWITCH POINT PROTECTOR
Prolongs the life of switch rails about 4 times; then is reversed and again extends the switch rail life for another similar period.



BRUSH CUTTER
Cuts right-of-way maintenance costs. One operator with the new, light-weight, Southworth can do the work of eight men using brush hooks or scythes. Extreme maneuverability, "work horse" power, light-weight are important advantages.

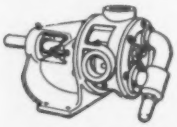


Speed Merchant
. . . America's newest high-speed locomotive for lightweight passenger equipment —designed to put the profits back in passenger service.



Train Master
. . . today's 2400 horsepower locomotive that is the most useful locomotive ever built—the records prove it.

Yard Switchers
. . . and road switchers from 1200 to 2000 hp. that keep more tonnage moving in the yard, on the hump and over the road.



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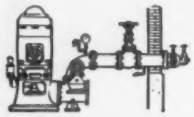

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. . . Underwriters' Laboratories Approved vertical and horizontal types for above- or below-ground installations in capacities up to 2500 g.p.m.

Sump Pumps
. . . in track and truck scale pits, basements and all underground or low locations. A wide range of models up to 5450 g.p.h.

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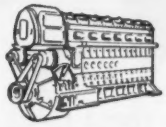
. . . from lightweight inspection cars to models that can carry a full section gang and tools with comfort, convenience, and above all else—safety.



Diesel Engines
. . . main and auxiliaries in R. R. tugs, generating sets for primary and standby power in yard areas, power for magnetic cranes, in sizes from 5 to 3600 hp.

Track Scales
. . . accurately weigh a whole train on the move and automatically print a record. There are more F-M track scales installed on railroads than all others combined.

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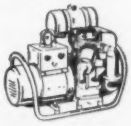
. . . from 1/6 to 3500 hp for driving pumps, shop tools, power hoists, ice-house compressors and generators. All types of enclosures.



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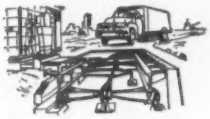
. . . platform or counter styles in new Floaxial design that enables you to swivel the face in any direction for easy reading.



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HAND LAMPS

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

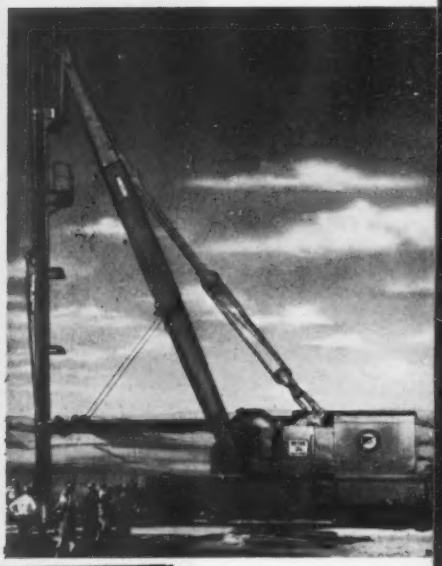
MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1957

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1957	Total (inc. misc.) 1956	Operating Expenses: Maint. Way and Structures: Total 1957	Total 1956	Deprec. and Retirements	Maint. Equipment: Total 1957	Total 1956	Deprec. and Retirements	Traffic	Transportation	Total 1957	Total 1956	Operating ratio 1957	Operating ratio 1956	Net from railway operation	Railway tax accruals	Net Railway operating income 1957	Net Railway operating income 1956
Akron, Canton & Youngstown	July	171	$545	.....	$563	$400	$83	$76	$6	$72	$68	$15	$45	$176	$419	$378	74.5	94.4	$144	$69	$44	$—16
	7 mos.	171	3,733	.....	3,827	3,452	504	500	42	511	445	100	314	1,138	2,797	2,621	73.1	75.9	1,031	513	314	242
Atchison, Topeka & Santa Fe	July	13,172	49,355	$4,666	58,586	52,303	8,241	7,690	710	10,610	9,611	2,234	1,313	18,567	41,387	38,226	70.6	73.1	17,200	9,279	7,755	6,113
	7 mos.	13,172	303,434	24,807	357,354	343,928	51,706	51,093	4,892	73,852	66,828	15,462	9,089	122,471	273,530	258,042	76.5	75.0	83,824	44,270	34,920	38,450
Atlanta & St. Andrews Bay	July	81	345	.....	348	367	52	45	3	29	30	7	7	71	179	171	51.3	46.5	169	74	57	75
	7 mos.	81	2,628	.....	2,652	2,561	299	303	23	202	200	48	46	487	1,177	1,195	44.4	46.6	1,475	660	535	522
Atlanta & West Point	July	93	232	31	309	318	45	46	6	62	61	14	17	154	299	291	96.6	91.5	11	20	—16	—4
	7 mos.	93	1,648	210	2,237	2,341	308	325	45	434	458	101	122	1,028	2,048	2,089	91.5	89.3	189	142	—21	—27
Western of Alabama	July	133	261	28	320	314	43	55	8	61	66	19	19	143	285	295	89.2	94.0	34	35	21	16
	7 mos.	133	1,914	195	2,360	2,436	360	354	62	465	500	131	136	988	2,094	2,098	88.7	86.1	266	228	159	195
Atlantic Coast Line	July	5,292	9,557	1,422	11,815	12,032	1,926	2,358	170	3,195	3,200	659	442	5,413	11,709	11,985	99.1	99.6	105	Cr 400	281	361
	7 mos.	5,292	80,303	11,456	98,874	101,353	14,625	17,919	1,224	20,638	21,089	4,552	3,299	38,589	82,007	85,058	82.9	83.9	16,868	8,700	5,805	5,794
Charleston & West. Carolina	July	343	482	.....	492	501	145	162	55	105	108	28	21	171	458	479	93.1	95.6	34	25	37	29
	7 mos.	343	4,124	.....	4,202	4,521	989	1,071	126	702	775	193	150	1,279	3,229	3,366	76.9	74.5	973	580	473	557
Baltimore & Ohio	July	6,005	32,366	1,700	36,380	32,921	4,646	3,317	324	6,890	6,907	1,096	1,052	16,326	30,771	28,588	84.6	86.8	5,609	551	2,864	2,089
	7 mos.	6,006	244,439	11,512	272,219	268,458	31,428	29,745	2,646	51,313	58,765	7,526	7,381	114,655	218,962	219,930	80.4	81.9	53,257	20,378	22,076	22,300
Staten Island Rapid Transit	July	29	164	65	234	222	52	45	12	33	30	2	2	150	279	243	119.2	109.7	—45	44	—113	—92
	7 mos.	29	1,393	446	1,870	1,773	401	359	82	259	205	12	12	1,045	1,998	1,780	106.9	100.4	—129	306	—644	—481
Bangor & Aroostook	July	602	760	28	830	974	168	201	22	237	219	104	50	303	846	835	101.9	85.7	—15	56	169	282
	7 mos.	602	9,848	197	10,326	10,563	2,126	2,153	126	1,891	1,761	729	236	2,898	7,795	7,287	75.5	69.0	2,531	1,078	1,909	2,483
Bessemer & Lake Erie	July	208	3,460	.....	3,624	655	215	255	18	626	387	140	47	629	1,652	1,112	45.6	170.0	1,972	1,354	1,113	28
	7 mos.	208	15,953	2	16,275	13,957	1,574	1,996	128	4,685	5,924	967	256	3,544	10,926	12,001	67.1	86.0	5,349	4,414	4,049	2,553
Boston & Maine	July	1,571	4,970	943	6,597	6,923	1,033	930	182	836	911	169	144	3,174	5,624	5,676	85.3	82.0	973	212	439	349
	7 mos.	1,571	38,974	5,949	50,261	51,602	6,916	7,213	1,103	6,510	6,623	1,254	1,086	23,303	40,784	41,286	81.1	80.0	9,477	2,787	3,086	2,787
Canadian Pacific Lines in Me.	July	234	331	60	417	407	148	125	12	72	125	17	9	158	403	454	96.8	111.4	13	32	—55	—123
	7 mos.	234	4,315	339	4,848	4,816	808	847	120	827	936	121	63	1,739	3,597	3,831	74.2	79.5	1,251	220	617	288
Carolina & Northwestern	July	284	259	.....	264	250	59	73	7	20	16	11	4	76	173	179	65.4	71.7	91	8	40	26
	7 mos.	284	2,080	.....	2,118	2,266	407	452	49	140	125	75	28	546	1,213	1,251	57.3	55.2	905	195	375	438
Central of Georgia	July	1,763	3,078	166	3,476	3,632	502	603	56	617	618	167	174	1,449	2,925	2,965	84.2	81.7	550	281	320	379
	7 mos.	1,763	22,703	1,097	25,644	26,219	3,855	4,019	354	4,400	4,086	1,142	1,232	10,202	20,989	20,692	81.8	78.9	4,655	1,784	2,776	3,353
Central of New Jersey	July	612	3,601	588	4,528	4,743	648	592	93	867	823	179	78	2,274	4,096	3,898	90.5	82.2	432	378	—72	244
	7 mos.	612	28,459	3,717	34,414	35,315	3,757	4,484	651	6,307	6,323	1,257	547	15,669	27,872	28,037	81.0	79.4	6,542	3,332	1,752	2,395
Central Vermont	July	383	795	81	943	1,069	297	269	17	109	103	10	20	413	876	819	92.9	76.6	67	53	—119	128
	7 mos.	383	5,559	424	6,757	6,870	1,794	1,342	119	809	802	73	129	2,720	5,739	5,389	84.9	77.3	1,018	355	355	433
Chesapeake & Ohio	July	5,132	30,315	709	33,206	30,536	3,996	3,710	457	5,946	5,910	1,814	874	12,016	24,420	22,779	73.5	74.6	8,786	4,068	4,843	4,282
	7 mos.	5,132	230,565	4,326	248,192	235,454	30,308	26,564	3,045	41,811	39,998	12,284	5,687	83,087	172,290	160,890	69.4	68.3	75,901	36,175	43,050	41,937
Chicago & Eastern Illinois	July	862	2,660	272	3,129	3,136	301	416	36	529	489	146	136	1,231	2,392	2,417	76.5	77.1	737	251	335	337
	7 mos.	862	19,362	1,535	22,508	21,566	2,586	2,534	211	3,726	3,405	994	968	8,654	17,336	16,512	77.0	76.6	5,172	1,263	2,392	2,398
Chicago & Illinois Midland	July	121	510	.....	534	560	66	69	10	123	121	24	31	150	416	408	77.9	72.9	118	64	38	62
	7 mos.	121	4,558	.....	4,669	4,569	328	361	48	734	686	170	216	1,085	2,670	2,671	57.2	58.5	1,999	1,050	884	870
Chicago & North Western	July	9,287	14,660	1,917	18,243	18,423	3,495	3,203	380	2,969	3,473	991	454	7,912	15,950	16,829	87.4	91.3	2,293	1,309	144	—762
	7 mos.	9,304	102,994	11,072	125,789	128,990	20,631	21,863	2,610	20,721	26,202	6,970	3,203	56,701	108,719	120,576	87.1	93.5	17,070	9,102	2,531	—7,996
Chicago, Burlington & Quincy	July	8,763	17,754	2,239	21,957	21,712	4,416	4,197	563	3,728	3,444	945	598	8,815	18,609	17,751	84.8	81.8	3,348	1,910	1,088	1,624
	7 mos.	8,788	118,204	11,831	143,654	143,708	21,994	20,850	2,742	25,769	24,522	6,539	4,239	58,067	116,915	113,617	81.4	79.1	26,739	14,047	11,425	13,207
Chicago Great Western	July	1,470	3,107	22	3,291	2,911	501	450	48	525	490	131	133	988	2,230	2,035	67.8	69.9	1,060	426	388	359
	7 mos.	1,470	20,899	80	22,051	20,311	3,205	3,053	292	3,369	3,272	887	894	6,767	14,809	13,884	67.1	68.3	7,243	2,994	2,696	2,556
Chic., Milw., St. Paul & Pacific	July	10,615	17,227	1,792	21,282	20,606	3,931	3,817	472	3,468	3,169	861	536	8,944	18,170	17,056	85.4	82.8	3,112	1,591	619	1,247
	7 mos.	10,621	119,730	9,033	143,276	142,727	25,409	24,264	2,998	27,224	27,948	6,805	3,858	58,678	123,555	122,361	86.2	85.7	19,721	10,909	4,498	5,590
Chicago, Rock Is. & Pacific	July	7,592	16,476	1,668	19,807	17,951	3,048	2,714	246	3,062	2,954	602	539	6,852	14,433	13,450	72.9	74.9	5,374	2,171	1,663	1,985
	7 mos.	7,594	101,979	10,022	122,322	116,786	16,906	15,514	1,698	20,644	19,563	4,158	3,892	46,833	94,831	88,951	77.5	76.2	27,491	11,150	9,001	11,866
Clinchfield	July	293	1,587	.....	1,596	1,548	211	240	20	290	409	99	56	438	1,054	1,196	66.4	77.2	542	206	603	323
	7 mos.	293	13,428	.....	13,498	14,492	2,093	1,941	139	2,771	2,641	686	412	3,252	8,961	8,653	66.4	59.7	4,537	1,464	4,422	5,291
Colorado & Southern	July	718	1,068	88	1,272	1,069	235	271	29	213	181	60	39	531	1,087	1,020	85.4	96.3	186	129	56	—46
	7 mos.	718	7,501	509	8,901	8,666	1,452	1,329	141	1,561	1,515	373	247	3,605	7,364	7,005	82.7	80.8	1,537	955	473	453
Ft. Worth & Denver	July	1,362	1,849	192	2,223	1,789	340	301	54	262	304	40	72	763	1,568	1,542	70.6	86.2	654	223	226	71
	7 mos.	1,362	10,143	1,085	12,522	12,165	2,354	1,902	278	1,769	1,962	304	500	5,083	10,514	9,968	84.0	81.9	2,007	311	443	764
Colorado & Wyoming	July	39	193	.....	307	133	—6	10	—8	50	19	12	2	126	188	60	61.1	45.3	119	73	42	5
	7 mos.	39	1,703	.....	2,652	2,156	134	176	1	319	216	78	10	951	1,528	1,271	57.6	58.9	1,124	646	434	341
Delaware & Hudson	July	771	3,703	192	4,024	4,041	583	536	67	778	704	187	95	1,587	3,328	3,170	82.7	78.4	696	361	492	663
	7 mos.	771	30,468	1,085	32,494	32,774	3,902	3,665	386	5,450	4,886	1,275	698	11,324	23,390	22,155	72.0	67.6	9,103	4,994	4,946	6,060
Delaware, Lacka. & Western	July	928	4,939	850	6,441	6,486	823	877	141	1,054	1,014	358	193	3,619	6,072	6,003	94.3	92.6	369	683	—321	—33
	7 mos.	941	39,341	5,754	49,862	51,247	5,539	5,829	1,021	7,321	7,579	2,435	1,389	25,822	42,833	42,388	85.9	82.7	7,029	4,583	1,595	4,706
Denver & Rio Grande Western	July	2,155	6,297	379	6,903	5,753	1,151	909	122	1,070	918	297	238	2,070	4,858	4,386	70.4	76.2	2,045	1,002	1,050	876
	7 mos.	2,155	45,005	1,772	48,199	44,183	6,060	5,549	719	7,370	6,724	2,047	1,574	14,355	31,418	29,480	65.2	66.7	16,781	8,188	8,957	7,938
Detroit & Toledo Shore Line	July	50	512	.....	546	546	75	75	3	98	54	24	20	209	419	364	76.9	66.5	126	38	12	44
	7 mos.	50	4,413	.....	4,719	4,938	520	574	23	569	472	165	137	1,584	2,929	2,836	62.1	57.4	1,790	644	398	539
Detroit, Toledo & Ironton	July	464	1,733	.....	1,819	1,404	272	197	33	376	372	124	58	476	1,281	1,104	70.4	78.6	538	243	284	195
	7 mos.	464	12,740	.....	13,214	12,194	1,835	1,961	194	2,900	2,427	768	388	3,436	9,251	8,459	70.0	69.4	3,962	1,746	2,102	2,004
Duluth, Missabe & Iron Range	July	566	7,358	2	8,586	744	583	330	79	785	318	205	12	2,199	3,785	1,382	44.1	185.8	4,801	2,817	2,002	—591
	7 mos.	566	25,776	9	30,292	21,572	3,595	3,047	578	5,462	4,510	1,010	79	9,966	20,418	16,546	67.4	76.7	9,874	5,981	4,101	1,890
Duluth, So. Shore & Atlantic	July	544	623	4	671	711	170	164	10	147	127	27	32	269	643	580	95.7	81.6	29	39	—36	68
	7 mos.	544	4,281	24	4,532	4,742	961	933	71	1,060	914	176	215	1,712	4,121	3,815	90.9	80.5	411	262	4	553
Duluth, Winnipeg & Pacific	July	175	592	1	697	460	79	93	5	64	81	2	7	179	339	428	48.6	93.1	358	52	223	—108
	7 mos.	175	3,673	5	3,710	4,060	447	539	34	408	540	14	48	1,258	2,228	2,955	60.1	72.8	1,481	275	526	181

ORTON

the most *POWERFUL*
name in CRANES...
and *PILE DRIVERS*

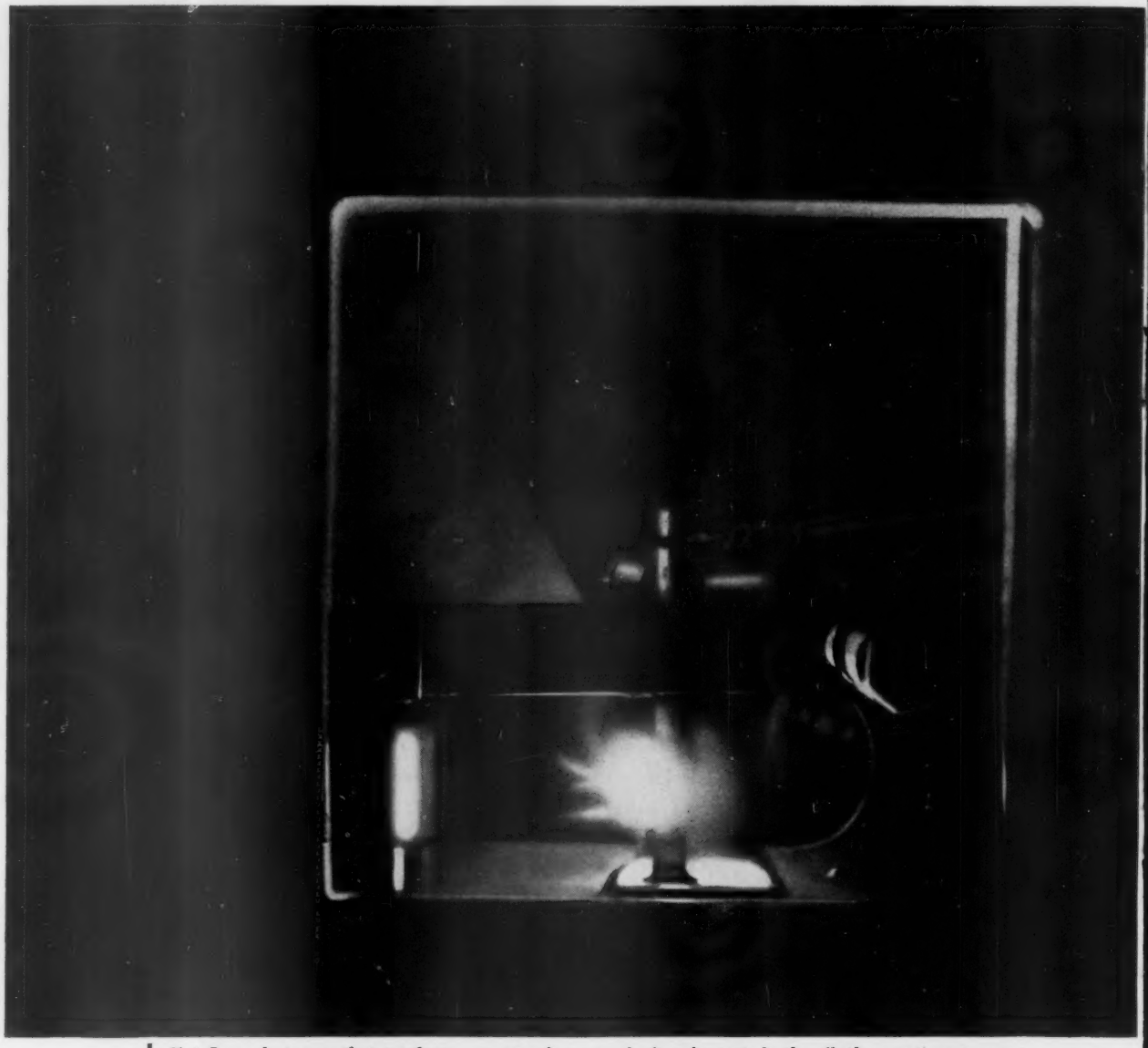
An ORTON Pile Driver *built to specification* hoists, rotates, travels and operates the pile-driver leads, powered by a GM diesel engine with fluid torque converter. Self propelled at 24 mph on level track. Easily negotiates 5% grade; pulls 10 loaded cars weighing 70 tons on level—or 1 such car on 4% grade. Hydraulic pumps and auger attachments. Ask for catalog No. 90.



An ORTON *Combination* PILE DRIVER, 160-ton DIESEL WRECKER and BRIDGE DERRICK *built to specification.* Pendent pile driver leads permit batter in both directions. Con be equipped for use with air or diesel-operated hammer. Above: in use as a pile driver; large photo at left: same machine as a wrecker. Ask for catalog No. 89.

All ORTON cranes operate on STRAIGHT DIESEL POWER. This enables ORTON to give a 10-year guarantee on travel gears without limitation due to accident, derailment, misuse or other cause. Idles at 600 rpm instead of 1800; reduces engine wear immensely; reduces fuel consumption to about ¾ of diesel electric operation. No danger of setting fire to combustible material on road beds. Moisture—even flood waters, won't immobilize an ORTON straight diesel machine.

ORTON CRANE & SHOVEL CO., 608 S. Dearborn St., Chicago 5, Ill.



1. Hot Box—but one that performs an amazing service. Diesel crankcase oil, already reduced to an ash, is burned inside electronic spectrometer. By analyzing elements in the oil, the spectrometer can spot engine trouble *before it gets serious*. Minor repairs then prevent costly breakdowns later.

2. Tip-off—A lab technician records readings from spectrometer dials. Electronic devices connected to each dial search for a different telltale element in oil sample.

3. Emergency Call—If test indicates trouble, spectrometer operator can have locomotive pulled into the repair shop *immediately*.

What's new on the New York Central

Electronic "furnace" analyzes lube oil to stop trouble before it starts ...and keep your freight moving faster

Inside a temperature- and humidity-controlled room at the Central's new Technical Research Center in Cleveland, a group of highly skilled technicians spend their time burning lubricating oil—practically drop by drop.

These men operate an intricate, multi-dialed spectrometer. This amazing machine, with its tiny electronic furnace, can predict diesel engine trouble *before it starts!*

By doing so, the spectrometer keeps more locomotives out of the repair shops and on the rails . . . *moving your freight faster.* Its testing ability will save $16,000,000 a year on locomotive maintenance alone.

Mechanical Blood Test

The spectrometer watches over the health of the Central's big diesel fleet like the team physician for a group of champion athletes.

4. Back in Service—hours or days sooner than previously. Spectrometer told shop crews exactly where to look for trouble.

Regularly every New York Central locomotive is tapped for a minute sample of its lubricating oil. The samples are reduced to ash at the testing stations, then forwarded to the Central's Cleveland lab. There a few grains of the ash are burned in the spectrometer. And as they are consumed the machine's 16 sensitive dials clock the presence and quantity of 16 elements.

If certain elements show up in the tests or begin to increase drastically, the spectrometer operator knows that trouble may be getting ready to start.

For example, if a trace of lead or copper appears, it means a bearing is beginning to wear. Or if silicon turns up, dirt from the roadbed may be getting into the engine.

The lab returns its diagnosis to the locomotive's home base. And if there is trouble brewing, a repair crew can quickly fix it *before* it turns into a costly breakdown. Eliminated are unnecessary overhauls, arbitrary oil changes when none are needed . . . and costly delays en route to shippers and their customers.

Electronic Railroading

This new testing equipment and the highly trained men who run it represent the *new* brand of railroading being pioneered by the New York Central. They stand for improvement—just one of *many* improvements that now mean better service than ever for you.

Route of the "Early Birds"—Fast Freight Service

New York Central Railroad

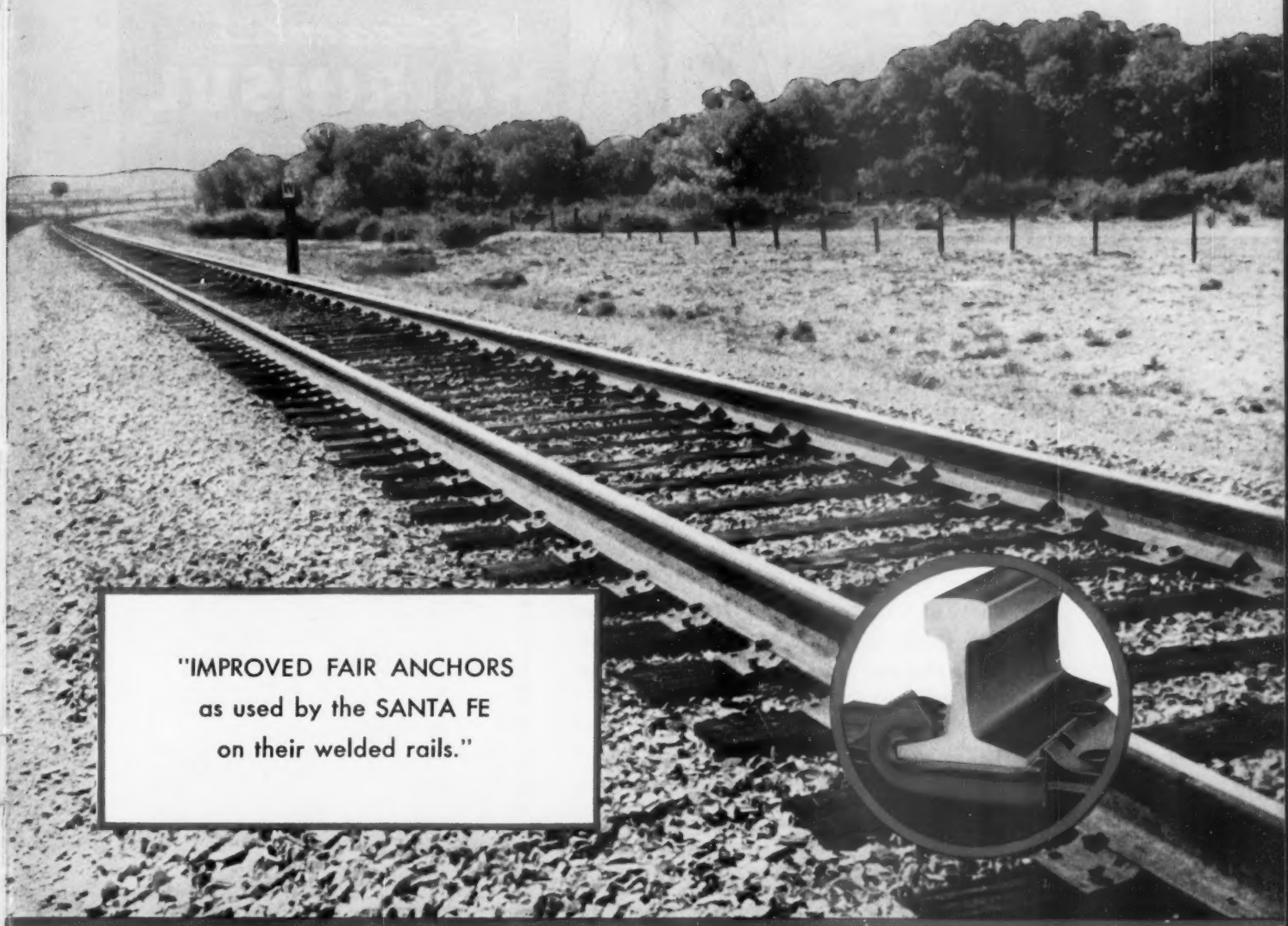
REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1957

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1957	Total (inc. misc.) 1956	Operating Expenses: Maint. Way and Structures: Total 1957	Total 1956	Deprec. and Retirements	Maint. Equipment: Total 1957	Total 1956	Deprec. and Retirements	Traffic	Transportation	Total 1957	Total 1956	Operating ratio 1957	Operating ratio 1956	Net from railway operation	Railway tax accruals	Net Railway operating income 1957	Net Railway operating income 1956
Elgin, Joliet & Eastern	July	236	3,488	....	4,427	1,697	336	239	34	1,084	509	117	44	1,753	3,470	1,804	78.4	106.3	957	397	188	—155
	7 mos.	236	27,683	1	34,053	30,254	2,105	1,886	190	6,719	5,737	832	301	12,508	23,320	20,539	68.5	67.9	10,733	4,477	2,732	2,420
Erie	July	2,207	12,382	636	13,979	12,708	2,108	2,140	224	2,221	2,139	548	403	6,846	11,411	11,762	88.8	92.6	1,568	465	262	679
	7 mos.	2,207	90,046	4,184	100,699	100,091	12,733	12,202	1,562	16,096	15,188	3,812	2,877	46,421	83,690	79,561	83.1	79.5	17,010	6,318	5,734	8,226
Florida East Coast	July	571	1,942	486	2,532	2,433	360	274	175	452	362	110	87	1,046	2,102	1,843	83.0	75.8	431	227	40	295
	7 mos.	571	18,614	3,910	24,314	23,320	3,501	3,048	428	4,231	4,028	738	639	8,984	18,598	17,197	76.5	73.7	5,716	1,623	2,104	2,773
Georgia Railroad	July	321	546	24	641	704	135	118	9	122	154	33	40	321	655	662	102.3	94.8	—15	40	—13	42
	7 mos.	321	4,184	144	4,904	5,201	878	901	65	970	998	235	282	2,172	4,570	4,608	93.2	88.6	334	284	370	563
Georgia & Florida	July	332	270	....	276	269	68	78	4	34	34	8	22	86	227	238	82.1	88.5	49	17	10	—7
	7 mos.	332	1,903	....	1,945	2,090	500	635	59	273	264	65	157	637	1,691	1,776	86.9	85.0	254	119	—11	43
Grand Trunk Western	July	951	4,032	267	4,594	4,850	811	806	73	861	962	93	99	2,631	4,630	4,630	100.8	95.5	—36	374	—920	—659
	7 mos.	951	31,066	1,555	35,225	37,040	4,897	4,779	434	6,594	6,687	652	643	17,796	31,511	31,589	89.5	85.3	3,714	2,694	—2,554	—953
Great Northern	July	8,301	22,924	1,244	26,018	21,062	5,161	5,380	320	4,107	3,691	801	546	8,726	19,752	18,274	75.9	86.8	6,266	3,273	2,387	1,689
	7 mos.	8,290	140,294	6,170	156,727	150,805	28,909	30,815	2,439	27,976	27,782	5,450	3,850	54,819	122,510	120,970	78.2	80.2	34,217	19,021	12,517	12,253
Green Bay & Western	July	224	382	....	396	367	63	86	4	44	49	9	28	119	274	290	69.2	79.0	122	53	26	10
	7 mos.	224	2,582	....	2,651	2,598	433	592	30	343	320	64	174	813	1,911	1,995	72.1	76.8	739	350	179	128
Gulf, Mobile & Ohio	July	2,757	5,954	353	6,760	6,816	987	1,119	78	1,567	1,248	283	301	2,427	5,677	5,284	84.0	77.5	1,083	534	186	600
	7 mos.	2,757	43,655	2,319	49,184	48,097	7,536	7,292	558	10,305	9,266	1,981	2,085	16,775	39,438	36,607	80.2	76.1	9,746	4,064	2,646	4,067
Illinois Central	July	6,502	19,398	1,963	23,346	23,313	3,940	3,410	364	4,105	3,888	880	608	9,135	18,936	17,515	81.1	75.1	4,410	2,313	1,344	2,255
	7 mos.	6,503	140,629	12,871	168,343	149,374	27,012	26,004	2,665	32,203	28,883	6,037	4,405	62,956	134,428	127,883	79.9	75.5	33,914	17,466	11,077	15,498
Illinois Terminal	July	339	924	27	1,086	1,040	162	161	20	177	166	40	48	410	858	812	78.9	78.1	229	70	91	81
	7 mos.	339	6,175	188	7,298	7,452	940	919	142	1,433	1,299	278	342	2,693	5,840	5,744	80.0	77.1	1,458	586	453	811
Kansas City Southern	July	891	3,188	126	3,613	3,930	336	407	50	475	499	107	94	1,185	2,228	2,298	61.7	58.5	1,385	608	642	656
	7 mos.	891	23,678	721	26,618	27,662	2,258	2,668	326	3,407	3,399	722	684	8,126	15,416	15,857	57.9	57.3	11,202	4,860	4,638	4,634
Kansas, Oklahoma & Gulf	July	327	406	....	487	389	63	108	7	39	30	12	34	99	266	290	65.3	74.7	141	53	54	25
	7 mos.	327	2,918	....	2,926	3,127	474	582	50	220	215	81	231	655	1,771	1,914	60.5	61.2	1,155	482	415	502
Lake Superior & Ishpeming	July	145	611	....	784	97	80	71	8	94	60	18	2	151	349	214	44.6	220.8	435	245	205	....
	7 mos.	145	2,184	....	2,771	2,317	399	384	54	583	500	125	15	681	1,821	1,600	65.7	69.1	949	607	503	428
Lehigh & Hudson River	July	96	280	....	280	261	41	34	2	43	31	8	18	108	220	188	78.4	72.0	61	27	4	17
	7 mos.	96	2,115	....	2,117	1,920	262	245	17	283	233	58	123	738	1,501	1,364	70.9	71.0	615	259	95	103
Lehigh & New England	July	178	280	....	286	660	39	45	6	128	171	52	21	148	377	509	131.9	77.1	—91	23	9	217
	7 mos.	178	4,032	....	4,077	4,577	564	495	48	1,233	1,292	320	153	1,494	3,766	3,741	92.4	81.7	310	254	1,072	1,400
Lehigh Valley	July	1,147	4,909	306	5,480	5,199	840	772	100	998	882	213	158	2,779	5,022	4,655	91.6	88.8	458	490	—196	89
	7 mos.	1,147	35,527	1,891	39,434	40,835	4,968	5,289	706	7,688	6,816	1,493	1,064	19,156	34,630	33,685	87.8	82.8	4,805	3,242	232	3,409
Litchfield & Madison	July	44	274	....	275	304	13	15	1	36	26	14	44	63	177	167	64.3	54.9	98	30	28	40
	7 mos.	44	2,082	....	2,107	2,265	78	81	5	184	173	54	309	422	1,145	1,131	54.3	49.9	963	385	288	352
Long Island	July	351	1,074	4,620	5,856	5,734	715	720	92	1,061	1,000	168	37	2,705	4,701	4,572	80.3	79.7	1,154	347	556	569
	7 mos.	351	8,254	28,964	38,384	37,361	5,429	5,423	642	7,409	7,438	1,169	189	18,916	33,239	32,914	86.6	88.1	5,145	2,415	976	324
Louisiana & Arkansas	July	746	2,072	51	2,219	2,315	213	265	7	320	319	97	80	705	1,398	1,433	63.0	61.9	820	387	324	441
	7 mos.	746	14,421	355	15,624	16,115	1,536	1,679	126	2,263	2,100	681	553	4,787	9,699	9,623	62.1	59.7	5,925	2,677	2,362	3,195
Louisville & Nashville	July	4,720	15,251	985	17,318	15,626	2,532	2,541	241	4,011	3,645	1,037	393	7,143	14,843	13,586	85.7	86.9	2,476	1,970	1,740	1,724
	7 mos.	4,726	109,016	5,759	122,854	121,580	18,550	17,142	1,691	28,715	25,527	7,191	2,803	47,412	102,671	95,728	83.6	78.7	20,184	15,681	13,508	16,120
Maine Central	July	944	1,412	124	1,676	2,017	476	464	32	368	322	77	24	802	1,786	1,696	106.6	84.1	—110	Cr 76	—36	135
	7 mos.	944	14,748	642	16,356	16,141	3,105	3,033	197	2,892	2,610	558	177	6,002	12,996	12,301	79.5	76.2	3,360	1,509	1,273	1,569
Minneapolis & St. Louis	July	1,391	1,839	3	1,904	1,756	285	266	29	244	285	81	106	613	1,372	1,365	72.1	77.7	532	291	223	178
	7 mos.	1,392	12,897	17	13,359	12,436	1,907	1,740	209	1,945	2,029	559	745	4,498	10,014	9,677	75.0	77.8	3,345	1,847	1,163	1,084
Minn., Northfield & Southern	July	77	359	....	381	338	116	27	2	32	32	11	27	85	290	198	76.2	58.7	91	40	28	52
	7 mos.	77	2,699	....	2,831	2,562	400	148	16	244	237	75	188	611	1,655	1,330	58.4	51.9	1,177	585	462	495
Minn., St. Paul & S. S. Marie	July	3,222	4,036	112	4,341	3,768	1,149	1,090	45	660	616	133	97	1,505	3,602	3,371	83.0	89.5	739	337	185	30
	7 mos.	3,222	25,341	462	27,048	25,915	5,457	5,486	326	5,031	4,614	939	675	9,817	22,127	21,403	81.8	82.6	4,921	2,535	1,661	1,548
Missouri-Illinois	July	172	536	....	539	506	53	73	6	86	74	30	12	129	293	285	54.4	56.4	246	138	119	117
	7 mos.	172	3,337	....	3,388	3,257	360	443	31	601	580	212	83	844	1,963	1,973	58.5	60.6	1,395	807	710	697
Missouri-Kansas-Texas Lines	July	3,183	5,297	236	6,062	6,072	991	882	97	1,121	978	263	223	2,289	4,890	4,991	80.7	82.2	1,172	411	328	295
	7 mos.	3,183	35,565	1,461	40,676	43,288	6,935	6,143	660	7,196	6,942	1,834	1,594	15,561	33,356	34,578	82.0	79.9	7,320	2,930	1,420	2,988
Missouri Pacific	July	9,660	23,390	1,225	26,843	26,346	3,815	4,210	317	4,073	4,452	1,021	710	9,656	19,355	19,628	72.1	74.5	7,487	2,714	3,717	3,697
	7 mos.	9,661	152,600	6,855	175,011	177,420	27,268	27,340	2,268	30,999	30,868	7,138	4,991	64,803	135,096	134,617	77.2	75.9	39,915	12,574	20,721	22,809
Monon	July	541	1,698	65	1,888	1,808	281	292	19	327	302	78	102	745	1,574	1,501	83.4	83.0	313	112	109	99
	7 mos.	541	11,539	474	12,983	13,110	1,884	2,241	142	2,175	2,055	530	733	5,150	10,802	10,769	83.2	82.1	2,181	780	692	819
Monongahela	July	177	406	....	409	436	77	69	16	68	59	13	1	194	351	294	85.9	67.4	58	30	—101	7
	7 mos.	177	3,610	....	3,630	3,648	541	489	114	440	402	82	6	1,422	2,500	2,235	68.9	61.3	1,130	211	—94	473
Nashville, Chatt. & St. Louis	July	1,043	2,066	171	2,501	2,667	455	411	49	432	431	137	117	1,231	2,354	2,247	94.1	84.3	147	105	36	171
	7 mos.	1,043	15,964	846	19,004	20,992	3,079	3,514	333	2,923	3,066	955	824	8,304	16,000	16,521	84.2	78.7	3,004	1,901	1,059	1,919
New York Central	July	10,621	44,522	7,806	59,143	56,616	8,407	5,173	1,205	8,748	11,020	2,400	871	28,628	49,566	47,505	83.8	83.9	9,577	5,833	2,339	2,441
	7 mos.	10,621	335,373	53,118	438,931	453,709	51,172	48,943	8,308	76,008	78,820	16,291	7,820	206,971	366,200	367,070	83.4	80.9	72,731	40,207	21,754	34,404
Pittsburgh & Lake Erie	July	221	3,478	55	3,662	1,310	651	281	109	1,105	728	270	60	1,224	3,266	2,090	89.2	159.5	396	703	823	—83
	7 mos.	221	24,937	381	26,577	24,074	4,098	3,065	816	7,611	6,386	1,825	561	9,295	23,156	20,145	87.1	83.7	3,421	5,264	5,668	5,682
New York, Chicago & St. Louis	July	2,179	13,162	174	13,821	12,007	1,780	1,624	191	2,454	2,334	462	370	5,348	10,462	9,724	75.7	81.0	3,359	1,581	1,282	769
	7 mos.	2,179	96,174	1,138	100,322	99,568	11,545	11,548	1,142	17,517	16,527	3,060	2,579	37,466	72,604	70,400	72.4	70.7	27,717	12,959	10,752	11,794
New York, New Haven & Htfd.	July	1,762	6,795	4,668	12,830	12,596	1,584	1,448	262	2,054	1,383	480	230	6,248	11,031	9,924	86.0	78.8	1,799	985	—603	364
	7 mos.	1,762	53,433	31,220	95,302	93,327	11,290	10,968	1,876	15,426	15,507	3,324	1,642	43,486	78,210	77,540	82.1	83.1	17,092	6,825	666	—500
New York Connecting	July	21	270	....	281	241	119	155	25	15	14	....	....	75	213	252	75.9	104.8	68	91	—14	—117
	7 mos.	21	2,143	....	2,281	2,654	685	704	177	124	89	....	....	622	1,455	1,441	63.8	54.3	826	649	139	491
New York, Susque. & Western	July	120	289	38	341	366	42	46	6	59	58	12	8	198	338	345	99.1	94.2	3	33	—64	—24
	7 mos.	120	2,598	298	3,010	3,060	316	362	41	408	399	87	62	1,466	2,477	2,456	82.3	80.3	534	243	—7	145

The Improved FAIR on the Line of PROGRESS



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as used by the SANTA FE
on their welded rails."

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Car building engineers have long recognized that Streamlite HAIRINSUL is the most efficient insulation under all operating conditions. A half century of successful use is proof enough that service conditions never retard its high insulating efficiency.

Not only is Streamlite HAIRINSUL a one-time investment; it actually outlives the life of the car and can be salvaged in perfect condition for use in new cars.

AMERICAN HAIR & FELT COMPANY
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SIX MAJOR REASONS WHY LEADING REFRIGERATOR CAR LINES SPECIFY *Streamlite HAIRINSUL*

1. **LOW CONDUCTIVITY.** Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity—.25 btu per square foot, per hour, per degree F., per inch thick.
2. **LIGHT WEIGHT.** Advanced processing methods reduce weight of Streamlite Hairinsul by 40%.
3. **PERMANENT.** Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.
4. **EASY TO INSTALL.** Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.
5. **COMPLETE RANGE.** Streamlite Hairinsul is available ¼" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other specified coverings are available.
6. **HIGH SALVAGE VALUE.** The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

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New and tougher track rollers with frames and guard of heavier construction
More ground clearance
Lower center of gravity for better handling and more stability
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ONE GOAL: To concentrate our capabilities, resources and experience on the design, manufacture, distribution and service of job-tested heavy equipment.

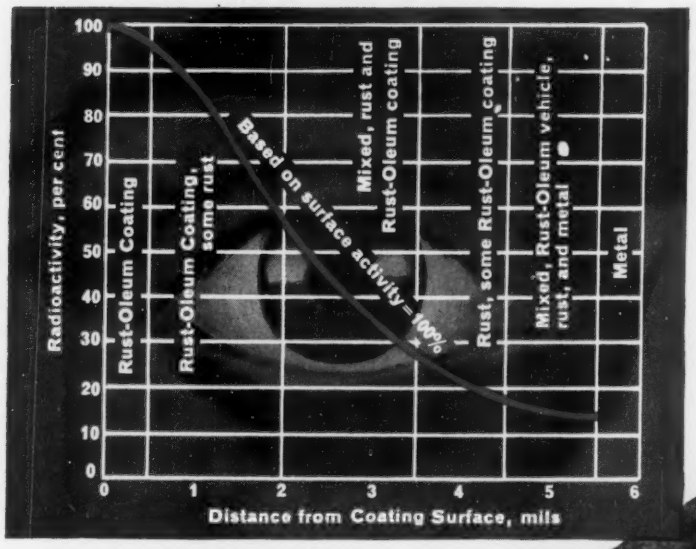
REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF JULY AND SEVEN MONTHS OF CALENDAR YEAR 1957

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses									Operating ratio		Net from railway operation	Railway tax accruals	Net Railway operating income	
							Maint. Way and Structures			Maint. Equipment											
			Freight	Pass.	Total (inc. misc.) 1957	Total (inc. misc.) 1956	Total 1957	Total 1956	Deprec. and Retirements	Total 1957	Total 1956	Deprec. and Retirements	Traffic	Transportation	Total 1957	Total 1956	1957	1956			1957	1956
Norfolk & Western	July	2,132	18,340	308	19,667	16,951	2,882	2,658	301	4,060	3,718	956	380	5,871	14,097	12,963	71.7	76.5	5,570	3,452	2,970	2,163
	7 mos.	2,132	139,377	1,912	148,374	135,264	20,292	18,188	2,205	29,940	29,962	6,262	2,674	43,288	102,478	96,236	69.1	71.1	45,896	29,068	23,703	20,503
Norfolk Southern	July	604	785	....	799	861	234	187	14	140	122	33	51	273	756	675	94.6	78.4	43	30	—2	61
	7 mos.	604	6,166	....	6,306	6,022	1,436	1,324	104	927	854	224	360	1,959	5,106	4,812	81.0	79.9	1,200	618	438	390
Northern Pacific	July	6,829	14,015	849	15,948	15,667	2,496	2,984	254	2,849	2,486	668	363	6,296	12,980	12,749	81.4	81.4	2,968	1,575	1,496	1,440
	7 mos.	6,831	93,097	4,054	104,119	105,065	16,223	15,691	1,971	20,043	20,024	4,576	2,889	42,582	88,350	86,949	84.9	82.8	15,769	9,925	7,553	8,449
Northwestern Pacific	July	329	1,095	5	1,110	1,188	241	272	18	90	120	3	6	363	726	814	65.4	68.5	384	152	68	58
	7 mos.	329	7,048	17	7,127	7,384	1,747	1,452	124	656	715	21	52	2,300	4,933	4,764	69.2	64.5	2,194	681	382	456
Pennsylvania	July	9,960	63,232	10,506	81,509	71,095	9,790	7,637	1,454	16,628	13,776	3,035	1,393	36,966	68,941	60,200	84.6	84.7	12,568	6,204	3,262	2,488
	7 mos.	9,961	453,538	73,901	583,494	570,735	66,456	60,831	10,179	120,145	116,107	21,214	9,988	263,588	490,926	469,949	84.1	82.3	92,568	41,632	28,973	38,772
Penn.-Read. Seashore Lines	July	358	632	281	935	936	201	253	22	111	135	27	13	544	915	946	97.8	101.0	21	98	—246	—255
	7 mos.	358	4,460	840	5,447	5,539	1,541	1,509	155	819	865	187	73	3,556	6,302	6,144	115.7	110.9	—855	669	—2,718	—2,260
Piedmont & Northern	July	126	335	....	343	398	50	47	4	29	26	9	29	84	225	214	65.5	53.8	119	58	25	47
	7 mos.	126	2,966	....	3,031	3,300	320	323	31	217	211	66	202	567	1,533	1,527	80.6	46.3	1,498	743	445	565
Pittsburgh & West Virginia	July	132	861	....	872	538	139	79	25	106	123	47	68	230	595	453	68.3	84.2	276	136	143	63
	7 mos.	132	5,884	....	5,925	5,287	853	725	174	973	959	304	540	1,509	4,261	3,933	71.9	74.4	1,665	801	953	753
Reading	July	1,304	8,830	643	10,169	9,020	1,724	1,381	159	1,751	1,836	488	191	4,638	8,796	7,995	86.5	88.6	1,373	87	1,131	709
	7 mos.	1,304	71,792	4,226	81,181	78,584	10,825	10,009	1,311	15,234	14,871	3,412	1,400	33,188	64,092	60,579	79.0	77.1	17,088	5,735	9,265	8,285
Richmond, Fred. & Potomac	July	118	1,282	558	2,062	2,109	239	213	31	352	323	67	29	761	1,526	1,439	74.0	68.2	536	306	151	219
	7 mos.	118	10,635	3,733	16,318	16,397	1,608	1,617	182	2,322	2,227	471	206	5,441	10,609	10,408	65.0	63.5	5,709	3,044	1,913	2,064
Rutland	July	391	352	....	380	399	88	92	7	62	45	17	29	164	370	348	97.4	87.1	10	29	—25	8
	7 mos.	391	2,853	....	3,016	3,018	608	623	53	425	363	115	214	1,139	2,595	2,463	86.0	81.6	421	201	140	208
Sacramento Northern	July	349	179	....	184	107	45	58	5	17	14	5	3	63	148	118	80.4	109.9	36	18	6	—44
	7 mos.	349	1,124	1	1,175	1,099	396	545	16	119	106	38	17	439	1,092	1,243	92.9	113.0	83	123	—127	—348
St. Louis-San Francisco	July	4,608	9,334	388	10,394	10,186	1,388	1,634	162	1,761	1,729	570	383	4,296	8,461	8,540	81.4	83.8	1,933	765	960	918
	7 mos.	4,609	62,024	2,448	69,296	72,679	9,742	10,908	1,126	11,664	12,007	3,994	2,742	28,549	57,111	57,424	82.4	79.0	12,185	5,135	6,134	7,694
St. Louis-San Fran. & Texas	July	155	341	3	365	372	49	44	4	30	30	1	26	150	298	275	81.6	74.0	67	9	—7	3
	7 mos.	155	2,502	26	2,681	2,816	292	300	29	218	245	8	189	1,180	1,963	1,897	73.2	67.4	717	195	84	176
St. Louis Southwestern Lines	July	1,560	5,651	18	5,788	5,433	681	688	68	775	722	153	194	1,710	3,557	3,512	61.5	64.6	2,231	1,105	921	779
	7 mos.	1,560	37,778	93	38,638	39,958	5,028	4,873	492	5,283	4,614	1,058	1,398	12,039	25,081	24,452	64.9	61.2	13,557	6,188	5,540	6,523
Savannah & Atlanta	July	144	295	1	306	319	103	51	2	59	56	19	15	95	283	220	92.5	69.0	23	Cr 9	22	65
	7 mos.	144	2,214	1	2,321	2,318	481	376	11	392	330	135	112	697	1,769	1,516	76.2	65.4	552	113	351	390
Seaboard Air Line	July	4,060	9,797	1,376	11,941	12,030	1,672	1,601	256	2,468	2,547	646	421	4,445	9,651	9,500	80.8	79.0	2,290	967	1,448	1,646
	7 mos.	4,062	81,731	8,816	97,087	97,302	13,883	13,734	1,487	17,965	17,868	4,406	2,907	33,596	72,905	70,876	75.1	72.8	24,182	9,859	12,654	14,159
Southern Railway	July	6,281	17,220	1,404	20,079	19,866	3,068	3,292	289	4,247	3,996	1,024	500	7,315	16,409	15,766	81.7	79.4	3,670	1,061	2,330	3,174
	7 mos.	6,281	136,724	8,358	155,952	160,282	21,434	21,839	2,149	28,563	29,013	6,809	3,393	50,194	112,259	111,333	72.0	69.5	43,693	18,057	22,772	25,413
Alabama Great Southern	July	328	1,300	74	1,499	1,339	264	209	35	332	280	76	43	562	1,316	1,094	87.8	81.7	183	93	33	137
	7 mos.	328	9,704	382	10,927	10,666	1,865	1,751	233	2,316	2,180	488	285	3,602	8,850	8,186	81.0	76.8	2,077	807	1,044	1,276
Cinn., N. Orleans & Tex. Pac.	July	337	2,873	165	3,219	3,242	523	555	65	753	632	217	87	957	2,528	2,357	78.5	72.7	691	309	482	518
	7 mos.	337	22,680	894	24,907	25,564	3,994	4,111	465	4,765	4,551	1,410	578	6,414	17,155	16,729	68.9	65.4	7,752	3,956	4,599	4,758
Georgia Southern & Florida	July	475	594	85	709	699	224	165	15	79	82	12	27	267	656	592	92.6	84.7	52	44	—107	—86
	7 mos.	475	4,747	394	5,614	6,007	1,474	1,561	82	586	604	87	206	1,950	4,645	4,580	82.7	76.2	969	295	—453	—4
New Orleans & Northeastern	July	204	988	49	1,103	1,202	253	186	21	171	164	60	26	261	787	665	71.4	55.3	316	178	107	197
	7 mos.	204	6,559	257	7,289	7,847	1,379	1,138	148	1,162	1,102	408	169	1,720	4,950	4,473	67.9	57.0	2,339	1,387	836	1,282
Southern Pacific	July	8,094	41,357	3,240	47,044	46,514	5,826	5,818	541	10,389	10,460	2,341	890	19,351	38,810	38,787	82.5	83.4	8,234	3,205	3,619	2,588
	7 mos.	8,095	268,705	17,843	302,906	311,720	37,922	38,593	3,387	67,989	67,066	15,641	6,000	121,616	249,064	252,502	82.2	81.0	53,842	22,394	25,401	25,365
Texas & New Orleans	July	4,284	10,800	463	11,973	11,473	2,069	2,071	307	1,491	1,636	178	280	4,482	8,946	8,971	74.7	78.2	3,027	1,191	724	410
	7 mos.	4,295	73,962	2,622	81,348	81,540	13,895	14,984	1,171	10,456	11,874	1,248	1,911	29,979	60,647	62,678	74.6	76.9	20,701	7,781	4,806	4,628
Spokane International	July	150	296	....	306	280	59	53	3	37	30	10	6	82	199	181	65.1	64.6	107	22	57	41
	7 mos.	150	2,134	....	2,206	2,109	413	482	18	221	202	69	44	550	1,326	1,393	60.1	66.0	880	247	428	266
Spokane, Portland & Seattle	July	945	2,197	129	2,480	3,055	449	468	57	465	434	124	31	1,084	2,145	2,014	86.5	65.9	335	251	—16	505
	7 mos.	945	16,431	568	18,135	19,184	2,867	2,748	384	3,061	3,028	810	232	6,806	13,829	13,351	76.3	69.6	4,306	1,595	1,848	3,264
Tennessee Central	July	286	373	....	386	410	65	78	8	66	61	23	18	127	305	310	78.9	75.8	81	24	8	36
	7 mos.	286	2,493	4	2,570	3,092	507	566	37	448	483	155	123	859	2,137	2,269	83.2	73.4	432	173	—18	328
Texas & Pacific	July	1,831	5,493	464	6,532	6,479	913	1,118	96	1,238	1,160	260	192	2,577	5,296	5,250	81.1	81.0	1,236	442	362	409
	7 mos.	1,831	40,181	2,511	46,458	47,586	7,046	7,640	694	7,855	7,379	1,805	1,437	17,205	36,154	35,653	77.8	74.9	10,304	3,737	3,446	5,467
Texas Mexican	July	161	340	....	379	263	54	54	6	33	31	10	12	107	227	188	60.0	71.4	152	63	42	16
	7 mos.	161	1,956	....	2,120	1,900	382	360	39	213	219	69	82	575	1,399	1,277	66.0	67.2	721	288	176	161
Toledo, Peoria & Western	July	239	593	....	605	558	86	88	6	54	41	12	54	156	391	364	64.5	65.2	215	94	69	56
	7 mos.	239	4,323	....	4,393	4,544	474	697	42	378	341	84	373	1,132	2,634	2,749	59.9	60.5	1,759	778	532	588
Union Pacific	July	9,786	35,902	3,533	42,545	42,511	5,028	5,654	550	7,670	7,043	1,745	1,039	15,579	31,719	30,774	74.6	72.4	10,826	5,476	2,835	3,116
	7 mos.	9,786	252,921	16,702	289,444	285,807	40,983	40,417	3,497	56,365	53,942	12,144	8,463	101,443	222,910	216,045	77.0	75.6	66,533	37,318	17,531	21,370
Virginian	July	611	4,451	....	4,735	4,144	594	532	65	750	659	250	58	969	2,500	2,234	52.8	53.9	2,235	1,163	1,264	1,008
	7 mos.	611	36,372	....	38,188	31,297	3,930	3,304	454	4,929	4,428	1,634	402	6,977	16,985	15,047	44.5	48.1	21,203	11,215	11,591	8,702
Wabash	July	2,392	9,202	532	10,563	9,959	1,283	1,116	114	1,544	1,320	410	353	4,681	8,343	7,511	79.0	75.4	2,220	689	817	958
	7 mos.	2,392	63,684	3,091	72,427	68,175	8,217	7,789	830	10,560	9,554	2,829	2,490	31,617	56,070	52,039	77.4	76.3	16,357	5,568	5,715	5,862
Ann Arbor	July	294	738	....	781	794	102	94	7	172	143	41	36	373	711	646	91.1	81.3	69	42	21	48
	7 mos.	294	5,401	....	5,494	5,537	670	639	46	1,151	994	256	227	2,486	4,698	4,433	85.5	80.1	796	383	234	362
Western Maryland	July	846	3,599	7	3,877	3,001	533	392	53	789	617	263	131	1,313	3,020	2,459	77.9	82.0	858	480	803	550
	7 mos.	846	30,467	26	32,483	29,412	4,187	4,086	363	5,659	5,241	1,767	871	9,966	22,556	21,144	69.4	71.9	9,928	5,170	7,062	5,724
Western Pacific	July	1,192	4,255	264	4,631	4,131	667	1,038	108	659	631	209	200	1,710	3,552	3,647	76.7	88.3	1,078	396	366	341
	7 mos.	1,192	29,776	1,411	31,906	30,660	4,784	5,892	708	4,518	4,435	1,434	1,499	10,692	23,490	24,011	73.6	78.3	8,416	3,613	4,389	3,916
Wisconsin Central	July	1,031	2,727	65	2,987	2,516	489	407	39	474	397	93	86	1,220	2,405	2,113	80.5	84.0	582	192	291	73
	7 mos.	1,031	18,563	277	19,957	18,890	3,281	3,050	277	3,336	2,935	596	614	8,275	16,432	14,937	82.3	79.1	3,526	1,247	1,086	1,630

See Rust-Oleum *penetrate rust* to bare metal through the "Eyes" of Radioactivity!



Curved line illustrates Rust-Oleum penetration through rust at each mil level as recorded by Geiger Counter.

Rust-Oleum dries to a firm, decorative coating that resists salt water, sun, fumes, heat, humidity, and weathering.

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This penetration means rust-stopping power, because the fish oil vehicle works its way into the tiny pits in the metal where it drives out air and moisture that cause rust. Important savings are yours, because Rust-Oleum can be applied directly over sound rusted surfaces – usually eliminating costly surface preparations. Attach coupon to your business letterhead for your copy of the thirty-page report entitled, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared by Battelle Memorial Institute technologists.

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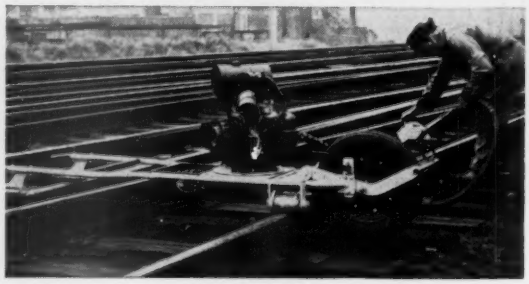
Service More Track, in Less Time, for Less Money *with* RTW GRINDERS and DRILLS

RTW Grinders and Drills speed up your maintenance work—enable you to keep rails in apple-pie order without crowding your track gangs — and save you money, too. Three popular RTW machines are shown here. All are easy-handling, with quick on/and/off rail action.

MODEL P-44 PORTABLE FLEXIBLE SHAFT GRINDER, designed to give added savings in labor and costs when laying new track or repairing old.

Grinder's 360° swivel engine mount prevents short bends and kinking of flexible shaft . . . clutch assembly in the engine protects shaft from overload . . . three position wheel clears switches and crossovers easily . . . quickly adaptable for auxiliary equipment: Straight Hand Wheel Piece, Angle Hand Piece for Cup Wheel, Cross Grinder Guides and Track Drill.



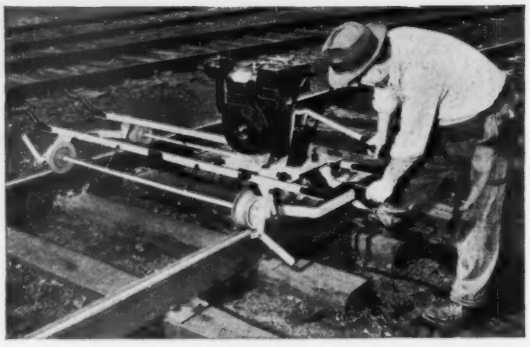
MODEL P-44

MODEL P-11-S PORTABLE CROSS GRINDER, a real time saver for removing overflow metal at rail ends as well as cross grinding behind welding crews.

Grinding wheel spindle and gasoline engine pivot 360° —you work both the rails with only one grinding head. Equipment mounted on transverse carriage which operates on ball bearings running on steel guides.

Pivoted foot clamping device with automatic release holds grinder firmly against rails during slotting.

Hinged and coil-spring-mounted handle for feeding 8" grinding wheel permits easy operation, any depth of cut.



MODEL P-11-S

MODEL P-43 POWER TRACK DRILL gives you 60-second drilling—quick, accurate drill-levelling—easy-acting, easily-controlled screw feed — easy-handling (aluminum castings keep weight down to 125-lbs.) . . . chuck jaws that take beaded tips up to 1½" and automatically stay open when chuck is loosened.

Telescopic extension on rail head bracket for drilling at heel of switch. Levelling device gives perfect alignment for drilling holes through angle bars and bare rails.

MODEL P-43

Investigate these and other cost-saving RTW track maintenance machines—write for literature

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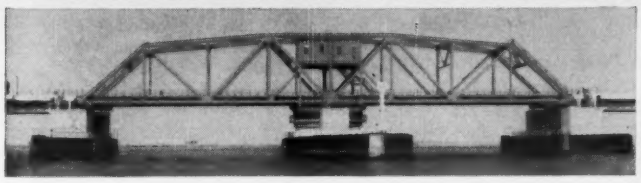
Specialists in Track Maintenance Equipment.

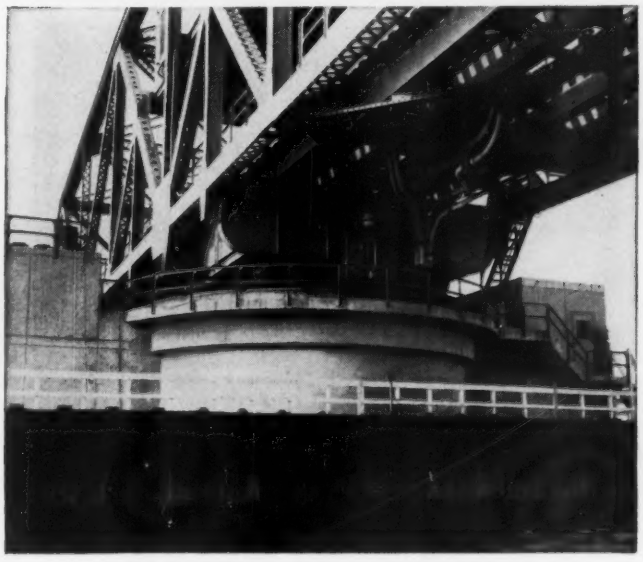
Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners



LOW CONTOUR SWING SPANS

solve traffic problem of sea-going subway line!

Specially designed structures on Jamaica Bay Crossing present no undue hazard to nearby Idlewild aircraft.



BUILT BY the New York Transit Authority, this new $25 million double-track over-water subway route linking The Rockaways with the city is a 6½-mile combination of trestles, steel girder spans and two swing bridges.

Because the Jamaica Bay bridges lie directly beneath the approach patterns for two runways of nearby Idlewild Airport, they were designed to minimize any hazard to low-flying planes. The fact that both the Beach Channel and the North Channel provide channel clearances of 200 ft. ruled out bascule-type bridges. The answer was found in the low contour structures shown here, the top of the top chords of which are just 65 ft. above mean high water. To further cut down on height, motors for these swing spans were placed in the supporting pier, rather than on top of it. Even the control houses are suspended from the top chord.

American Bridge fabricated and erected the structural steelwork for both swing bridges—the 305′-long Beach Channel Bridge and the 272′4″-long North Channel Bridge—together with 2470′ of plate girder spans for approaches. The American Bridge contract also included motors and other material and services for placing the entire bridge project in operation.

If you would like to know more about our fabricating and erecting services, please contact the office nearest you.

Jamaica Bay Swing Bridges and Approaches built for New York Transit Authority by American Bridge.

Designs by Hardesty & Hanover, Consulting Engineers, New York, N. Y. **Substructure Contractor: Merritt-Chapman & Scott, New York, N. Y.**

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UNITED STATES STEEL

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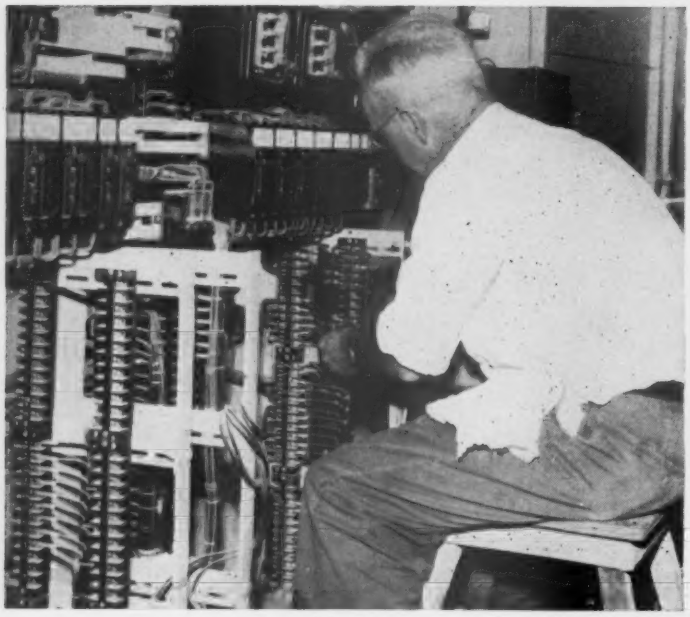

PEAK RELIABILITY. Anaconda's Type ANW-rubber-insulated control cable is a high-quality product which features unusual heat resistance. It is also highly resistant to attack by moisture, acids, alkalies and other chemicals. Individual conductor covering and over-all jacket of neoprene.

MULTIPLE USE. Anaconda thermoplastic control cables can be installed aerially, in conduit, underground in ducts—or buried directly in the earth. They are available with either polyethylene (600 or 1000 volts) or Densheath* vinyl resin (600 volts) insulation and Densheath over-all jacket. Also with Densheath conductor covers on request.

OZONE-RESISTANCE. For station control applications where ozone conditions prevail, Anaconda offers a special low-voltage butyl-insulated cable. This control cable not only resists ozone, but individual conductor covering and over-all jacket of neoprene provide maximum insurance against moisture and mechanical injury.

SPACE-SAVER. You can install a 12-conductor cable in conduit now carrying a 6 or 7—with Anaconda Type PND† Control Cable. Individual conductor coverings of moisture-, oil- and gasoline-resistant nylon. Over-all Densheath jacket. Designed for general-purpose control requirements where space is a limiting factor.

Permanent Full Color Coding on rubber cables, by means of Anaconda's rubber-base coating, assures quick and positive circuit identification. Coding by surface printing, which conforms to IPCEA standards, also available. On thermoplastic cables, full color coding with pigmented insulation and surface printed coding are likewise offered. For information on any of Anaconda's Control Cables—including cables engineered for more specialized control requirements—see your Anaconda distributor or the Man from Anaconda. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

*Reg. U.S. Pat. Off. 57389
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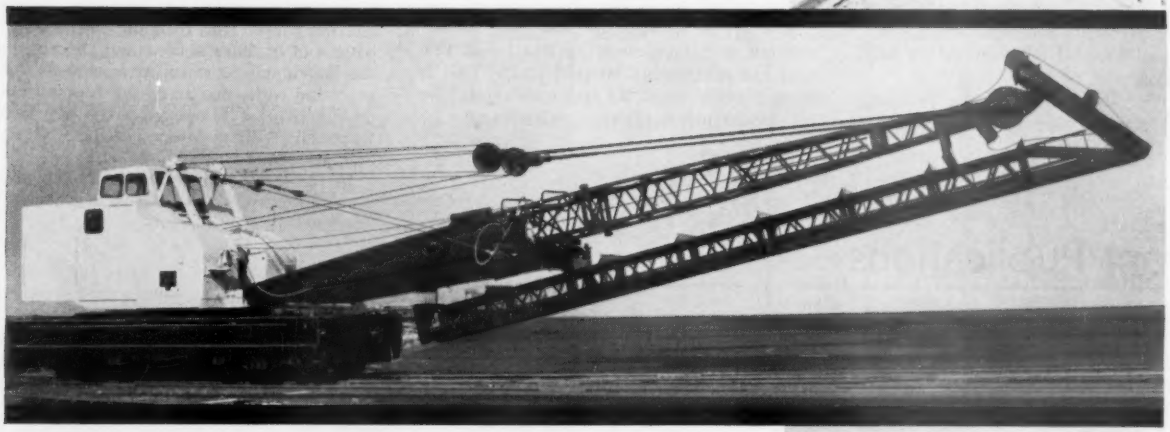

BROWNHOIST DIESEL ELECTRIC PILE DRIVERS HAVE THE SPEED TO GET OFF MAIN LINES QUICKLY, AND THE LONG LEADERS AND FULL CIRCLE ROTATION TO WORK IN ANY POSITION

Propelled by electric travel motors, these Industrial Brownhoist machines are capable of road speeds up to 18 miles per hour . . . they get on and off main lines in a hurry. Strut and leaders fold away for travel, allowing full railroad clearance, and they're quickly and easily fastened in upright position for battering. The Brownhoist rotates in a full circle, and its leader reach of 28'6" from center of rotation gives it a wide working range. A large Diesel engine supplies the power for the heavy-duty Brownhoist machine. It has a maximum leader load of 26,000 pounds, and is equipped with power battering to sink piles as large or larger than that shown in the upper photograph. For further information about Diesel Electric Pile Drivers or other heavy-duty materials handling equipment, write today for your copy of the new Industrial Brownhoist catalog.

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BROWNHOIST

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Seaway Tolls Should Pay Its Cost

"The firm controlling fact from which to start" in considering tolls for the St. Lawrence Seaway, the AAR contends, is that "waterway costs should be paid for by the users."

That's the fundamental position advanced for the railroad association by Economist Burton N. Behling in a statement to the United States Toll Committee.

"From the standpoint of sound economy and good faith, as well as requirement of law, the Seaway Corporation can do no less than its utmost to hold fast to this principle," Mr. Behling stated. "Unless that is done, only an illusion of cheap transportation by the waterway would have been created." Early advocates of the Seaway pledged "self-liquidation," Mr. Behling asserted, and they should be held to that pledge.

"If, as representatives of some prospective users now contend, the navigation project cannot be made to pay for itself," he went on, this "would mean that the project is an economically unsound transportation facility."

He recommended fixing tolls based on sound traffic forecasts without use of "incentive" charges at lower rates to stimulate use of the waterway. Mr. Behling recalled that in 1953 tolls of 50-cents a ton on bulk commodities and $1.25 a ton on general cargo were suggested by Seaway proponents as being reasonable.

Post-1953 inflation makes these tolls too low rather than excessive, as he said is now being claimed. Costs of the project, he said, "have proved to be substantially above earlier estimates."

The AAR spokesman said that he advocated self-liquidation as nearly as this goal can practicably be achieved. "This is what the aim must be and tolls should be set consistently with this objective."

Current Publications

PERIODICAL ARTICLES

THE EASTERN RAIL-ROAD COMPANY TO 1855, and THE EASTERN RAIL-ROAD COMPANY, 1855-1884, by Charles J. Kennedy. The Business History Review, Spring 1957, pp. 92-123; Summer 1957, pp. 179-208. Harvard Graduate School of Business Administration, 217 Baker Library, Soldiers Field, Boston 63. Information on single copies on request to publisher.

These articles on the business history of the Eastern Rail-road are based upon material used in the forthcoming volume on the history of the Boston & Maine, of which the Eastern became a part.

RECORDS

THE SOUNDS OF STEAM RAILROADING, by O. Winston Link. 12-inch LP, 33⅓ rpm Hi Fi. O. Winston Link, 58 E. 34th st., New York 16. $4.95.

Made by Mr. Link along the Norfolk & Western, this record includes, in its nine sequences, sounds which range from the ghostlike workings of a train in the far Virginia hills to the call of an old-time depot announcer and the unbelievable pandemonium of a Mallet blasting past the microphone. Included are the sounds of N&W chime and freight whistles, a passenger train arriving and leaving a way station, and a hot-shot freight shifting at a junction point. The album is not merely a record of train whistles and wheels but includes the almost infinite variety of sounds attendant to steam operation. The recording is of real trains going about their chores, not of locomotives set up for the purpose.

FROM THE MANUFACTURERS

AUTOMATION IN ASSEMBLY. 24 pages, illustrations, color. Thor Power Tool Company, Automation Division, Dept. RA, Prudential Plaza, Chicago 1, Illinois. Free.

Thor's booklet discusses assembly problems of various industries, cites basic questions and answers on use of multiple spindle tools, and details planning of bolt-spacing patterns and arrangements. It describes regulator mountings, air supply, suspension, maintenance and related installation aspects of portable and machine-type multiple spindle tools.

BOOKS

THE AGE OF STEAM; A CLASSIC ALBUM OF AMERICAN RAILROADING, by Lucius Beebe and Charles Clegg. 304 pages, illustrations. Rinehart & Company, Inc., 232 Madison ave., New York 16. $15.

The noted authorities on the history and folklore of railroads, Lucius Beebe and Charles Clegg, take here what they call their last long look at steam railroading and particularly at the era they like to call the golden age of steam. This anthology recaptures American railroading as it evolved over the last century and a quarter.

Here are the primeval trains of the 1830's; the diversified rolling stock of the small New England and Southern railways that tied together the less trafficked agricultural and commercial places of a nation; the bonanza lines of the roaring West with the treasure cars of Wells Fargo & Co., and the glistening steel and aluminum high-speed lightweight trains of the transcontinental main lines. Early sketches and later photographs capture the beautifully painted wood burners, the wooding-up, the stark outline of the water towers still used on some of the lines of the deep south. Nearly 500 pictures depict scenes that have become part of American railway folklore.

The book embraces not only the engines and the cars but also the designers and the people who rode the steamcars in a pattern of continental conquest. Described are the individualistic wheel arrangements, valve gears and boiler designs of the Taunton Locomotive Works, Hinckley & Drury, Breese Kneeland, William Mason, Richard Norris & Son, and the Portland Company.

In the text which accompanies the photographs, the authors sketch in a considerable amount of railroad history.

•

THE CABOOSE CLUB, by Adele and Cateau De Leeuw. 150 pages, illustrations. Little, Brown and Company, 34 Beacon st., Boston 6. $3.

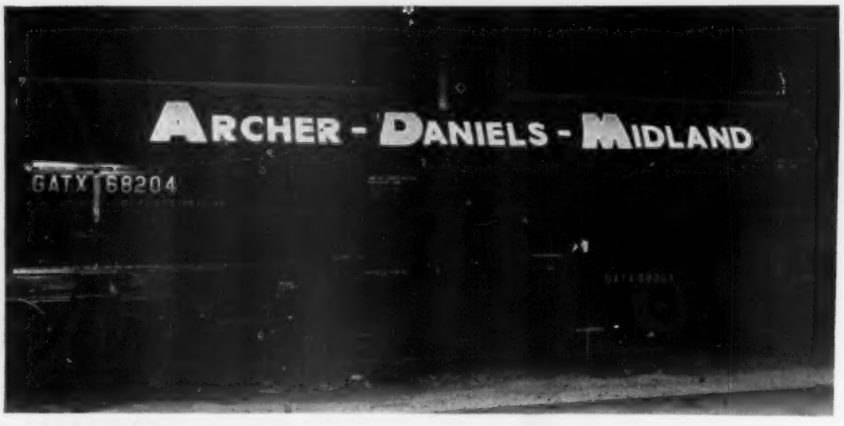
The story of how a do-it-yourself kit for making a caboose and box car to scale, and a visit to see a whole "pike," start exciting times when Bob Brown and his friends form their own model train club, is told in this children's book.

•

HUMAN UNDERSTANDING IN INDUSTRY, by Dr. William C. Menninger, assisted by Dr. Harry Levinson. 112 pages, illustrated. Science Research Associates, 57 W. Grand ave., Chicago 10. Single copies, $2.25; quantity discount.

This book, to be published in the fall, presents a down-to-earth, practical view of how the human personality functions. It enables

(Continued on page 76)



Bold, Bright Lettering Adds Night Safety Factor

New reflective sign on tank car operated by Archer-Daniels-Midland not only publicizes firm name wherever car rolls but also serves as nighttime safety device at crossings. ADM's fleet of 500 tank cars is being similarly dressed up with 20-foot long "Scotchlight" signs in bright red and white.

SPENO

REPORT OF A DECADE OF PROGRESS

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1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
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PRR	PRR	PRR	PRR	PRR	PRR	PRR	PRR	PRR	PRR
SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry	SOU.Ry
B&MRR	B&MRR								
CRRNJ	CRRNJ	CRRNJ		CRRNJ		CRRNJ		CRRNJ	
CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP	CNO&TP
The D&H								The D&H	The D&H
	IC				IC	IC	IC	IC	IC
			C&O	C&O	C&O	C&O	C&O	C&O	C&O
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					NYCRR	NYCRR	NYCRR	NYCRR	NYCRR
					CNRys	CNRys	CNRys	CNRys	CNRys
					CPRy	CPRy	CPRy		
					RDG	RDG		RDG	RDG
					ACL	ACL	ACL	ACL	ACL
						NKP			
						AGSRR	AGSRR	AGSRR	AGSRR
						CCC&STL	CCC&STL	CCC&STL	CCC&STL
						IHBRR	IHBRR	IHBRR	
							B&OCT	B&OCT	B&OCT
							B&ARR	B&ARR	B&ARR
								B&O	B&O
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									CB&QRR
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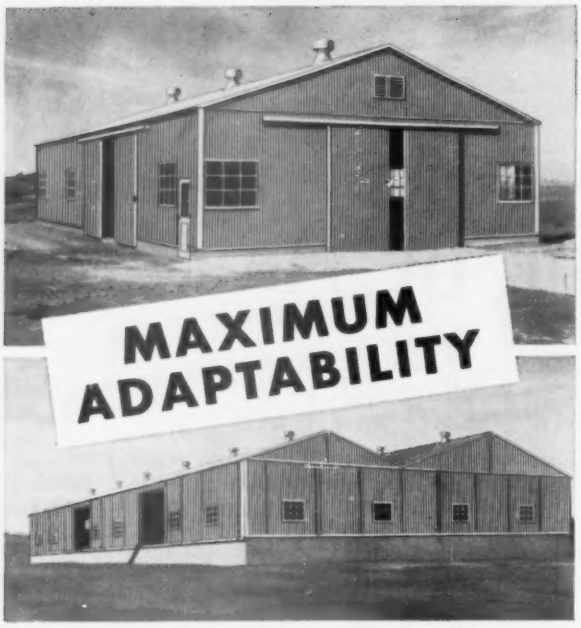

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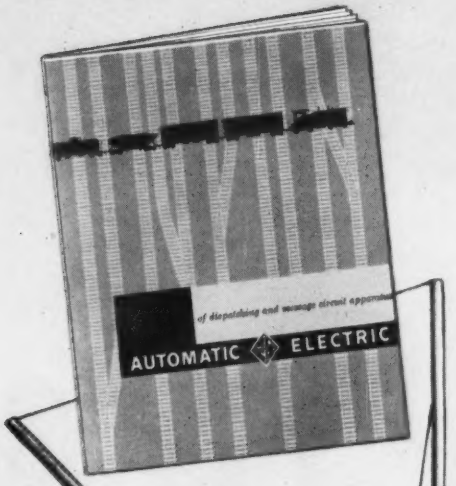

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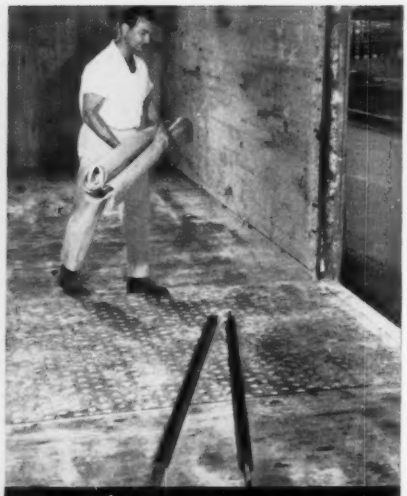

ONE MAN . . . FIVE MINUTES . . . Acme Steel furnishes all the parts, just unroll the package, drive ten nails per door and the Acme Steel Grain Door is in place.

STRONG . . . TIGHT . . . severe tests prove that the Acme Steel Grain Door can take all the punishment encountered under all handling and transit conditions.

NO BULGE . . . EASY TO LOAD and UNLOAD . . . horizontal steel beams and vertical steel slats prevent bulge from springing the car door. Automatic and manual unloading are fast and easy.

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Proved in service, these Acme Steel Grain Doors provide a fast, economical barrier for grain or malt shipped in box cars.

They're easy to set up for loading. Unloading is fast and simple. In transit, or during loading and unloading, Acme Steel Grain Doors assure positive protection and control of the load. Heavy, reinforced, high quality paper, supported by horizontal steel beams and vertical, flexible steel slats holds grain load securely and clear of the car door.

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ACME STEEL GRAIN DOORS

MARKET OUTLOOK *at a glance*

Week's Loadings 4.6% Below Last Year's

Loadings of revenue freight in the week ended September 7 totaled 648,391 cars, the Association of American Railroads announced on September 12. This was a decrease of 96,792 cars, or 13.0%, compared with the previous week; a decrease of 31,260 cars, or 4.6%, compared with the corresponding week last year; and a decrease of 53,601 cars, or 7.6%, compared with the equivalent 1955 week.

Loadings of revenue freight for the week ended August 31 totaled 745,183 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, August 31

District	1957	1956	1955
Eastern	115,171	125,681	120,524
Allegheny	146,036	155,443	150,056
Pocahontas	64,458	64,958	62,956
Southern	123,352	127,031	125,865
Northwestern	122,686	122,024	142,424
Central Western	120,117	130,309	129,488
Southwestern	53,363	58,920	58,409
Total Western Districts	296,166	311,253	330,321
Total All Roads	745,183	784,366	789,722
Commodities:			
Grain and grain products	48,170	51,252	52,491
Livestock	6,774	10,439	7,984
Coal	139,869	140,470	131,725
Coke	11,171	11,206	13,018
Forest Products	40,924	48,629	49,169
Ore	84,996	73,630	87,583
Merchandise l.c.l.	56,277	63,147	64,320
Miscellaneous	357,002	385,593	383,432
August 31	745,183	784,366	789,722
August 24	759,140	770,413	787,272
August 17	750,640	769,644	775,701
August 10	740,471	715,207	770,251
August 3	740,711	660,287	760,387
Cumulative total, 35 weeks	24,284,746	25,025,546	24,778,891

New Equipment

FREIGHT-TRAIN CARS

► *Cotton Belt.*—Ordered 25 50-ton insulated box cars, Pacific Car & Foundry, at approximate unit cost of $14,735; delivery scheduled for January 1958.

► *Delaware & Hudson.*—Will construct at its Oneonta, N.Y., shops three 60-ton well cars, two 250-ton heavy-duty flat cars and one 125-ton depressed center flat car; estimated cost $250,000; delivery expected second quarter 1958.

► *Denver & Rio Grande Western.*—Ordered 50 70-ton covered hopper cars, American Car & Foundry Co., at estimated unit cost of $11,000; delivery expected second quarter 1958.

► *Pacific Fruit Express.*—Will build 1,000 mechanical refrigerator cars at cost of more than $20 million; 500 cars will be 50-ft "super giants," designed for transporting frozen foods; other 500 will be 40-ft cars, for smaller frozen food shipments and for carrying fresh fruit and vegetables (marking first regular use of mechanical refrigerators by PFE for this traffic); cars will be delivered from March 1958 through February 1959.

► *Union Tank Car Co.*—Ordered 225 tank cars from its own shops for delivery in late 1957 or early 1958.

SPECIAL

► *Union Pacific.*—Bought four Hy-Rail cars from Fairmont Railway Motors, Inc., for use in track inspection; cars (1957 station wagons) are equipped with retractable flanged guide wheels for driving on rails.

New Facilities

► *Alaska.*—Current construction projects total expenditures of $2,264,145: Grading, drainage and track work in Seward Yard ($521,890); ballasting and surfacing of 44.7 miles of track between Anchorage and Wasilla ($870,055); construction of transit shed at Seward Marine Terminal ($534,700); construction of terminal building at Portage ($202,500); and construction of a spur at International Airport ($135,000).

► *Chicago Transit Authority.*—Started construction of new terminal facilities at Forest Park; overall project cost is estimated at $2,500,000; facilities will include car storage yard, shop building for maintenance and light overhaul, transportation building and (if space is available) parking lot for patrons; project ties in with construction of Congress Expressway and will make CTA facilities available before start of operations in expressway median strip (expected by early March, 1958).

► *Denver & Rio Grande Western.*—Will modernize its Burnham, Colo., freight car shop at estimated net cost of $335,800.

► *Detroit, Toledo & Ironton.*—Projects underway or authorized at Jackson, Ohio, include alterations and additions to shop buildings, facilities and tracks at cost of $60,000; yard track drainage, to be completed October

(Continued on next page)

a RAILWAY AGE time-saver page

(Continued from preceding page)
15, at cost of $36,000; construction of diesel service facilities, a $40,000 project, was scheduled for completion earlier this month.

► *Northern Pacific.*—Will replace fire-damaged car repair shop at Parkwater, Wash., with 90-ft by 240-ft metal car shed with four repair tracks, and adjacent leanto with office and shop area, at estimated cost of $105,000; other construction includes new 28-ft by 100-ft ward office with yardmaster's tower at east end of Spokane Yard ($55,000); and new service building adjacent to Union Station, Tacoma, Wash., to house Communications Department, offices and shops and Signal Department shops and electrical shops ($46,000).

► *Tennessee, Alabama & Georgia.*—Road is moving ahead on purchase of mechanized equipment for track maintenance; project, costing about $60,000, may be completed during 1958.

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to
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Your best source for car and locomotive castings in steel and malleable iron.

SUPERIOR STEEL AND MALLEABLE CASTINGS CO.

40 years of service to the railroad industry.

Graham Avenue Benton Harbor, Michigan

(Continued from page 70)
the supervisor to understand himself and his employees better. The material is organized to be especially well suited for supervision training courses such as conducted by leading industries.

The handbook uses factual, understandable material to bring out its important points. Some of the topics are: the relationship between the supervisor and his men; how people get the way they are; what personality consists of; how personality protects itself, the "safety valve, etc."; seeing the other fellow's point of view; and making the most of our most precious resource, manpower. A leader's guide for use in conducting group discussions is also available. One copy is supplied free with purchase of each 10 copies of the book; extra copies of the guide cost 50 cents each.

•

THE PORT OF CHICAGO AND THE ST. LAWRENCE SEAWAY, by Harold M. Mayer. 283 pages, illustrations, charts, maps. The University of Chicago, Department of Geography, Rosenwald Hall 24, Chicago 37. $3.

The major purposes of this paper are: (1) to present in an integrated and comprehensive, though not necessarily complete, manner the background of Chicago as a port, in relation to the existing and prospective waterway facilities available to it; (2) to raise certain questions relative to the planning of harbor and port terminal facilities within the metropolitan area, with special reference to their relationships to other aspects of urban and metropolitan structure and growth, and (3) to suggest possible avenues of approach toward solution of some of the current problems and issues.

PAMPHLETS

THE AGRICULTURAL EXEMPTION IN INTERSTATE TRUCKING; A LEGISLATIVE AND JUDICIAL HISTORY, by Celia Sperling. 71 pages. Marketing Research Report No. 188. Issued by the Marketing Research Division, Agricultural Marketing Service, U.S. Department of Agriculture. Available from the Government Printing Office, Washington 25, D.C. 40¢.

Much has been said and written about the scope of the "agricultural exemption," the provision in the Interstate Commerce Act which exempts motor carriers of agricultural commodities (including unmanufactured products thereof), from economic regulation by the ICC. Economic regulation includes control over who may engage in trucking, the routes or areas to be served, and rates to be charged.

The intent of the Congress in writing this exemption into law has been variously interpreted by different groups. This legislative and judicial history sets forth both the words and the deeds of the Congress itself with reference to the exemption clauses, and reviews the construction placed on the language of the exemption by the ICC and the courts in the leading cases.

•

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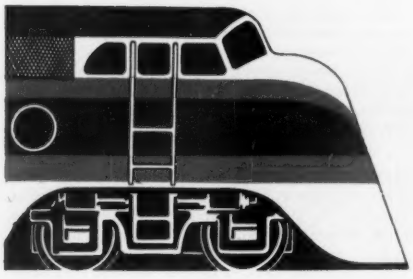
C&EI's new brochure, published to answer numerous requests from shippers, passengers and school children for material about the railroad, contains a brief history of the line, information on right-of-way, photographs and descriptions of equipment, a locomotive roster and a system map.

don't start a cold Diesel...



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avoid costly maintenance
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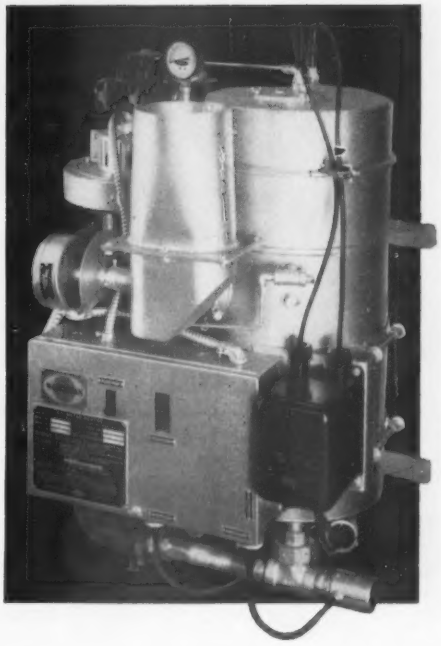
VAPOR WATCHMAN keeps diesel engines at safe minimum 140° F. ready-to-go operating temperatures *automatically*. Operates for less than 15 cents per day in summer . . . burns only 1¼ *quarts* of diesel fuel per hour in coldest weather! Compare this to 3½ *gallons* per hour for idling. And, the VAPOR WATCHMAN has many other cost-cutting advantages: less engine maintenance and longer life when all metal parts are kept fully expanded. Result: no "warm up" wear . . . less sludge formation . . . longer service from gaskets. No engine watchman. Each VAPOR WATCHMAN saves over $1000.00 annually in fuel costs alone—pays for itself in two years. It's railroading's *outstanding* investment!

Write for Bulletin 588—"A Baby Sitter for Diesels".



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People in the News

ASSOCIATION OF AMERICAN RAILROADS.—Philip A. Lyon appointed secretary, Finance, Accounting, Taxation and Valution Department, succeeding **Richard E. Keefer,** appointed assistant secretary and assistant treasurer, AAR. Mr. Lyon also will serve as secretary, Accounting and Treasury Divisions, and of their respective committees.

BESSEMER & LAKE ERIE.—A. A. Griffin, staff assistant to general superintendent, Greenville, Pa., appointed piggyback supervisor, Pittsburgh district terminal, North Bessemer, Pa.

BOSTON & MAINE.—Whitcomb Haynes, general superintendent, Boston, appointed general manager. **John E. Rourke,** assistant general superintendent, named general superintendent transportation.

CANADIAN PACIFIC.—F. E. Bailey, acting general superintendent, New Brunswick district, St. John, N. B., appointed general superintendent of that district. **T. R. Alexander,** assistant superintendent, Edmonton, Alta., promoted to superintendent, Saskatoon, Sask., succeeding **E.C.B. Macnabb,** transferred to Edmonton, replacing **E. T. Truman,** retired. **G. W. Davis,** assistant general yardmaster, Alyth Yard, Calgary, Alta., promoted to assistant superintendent, Moose Jaw., Sask., succeeding **J. A. Forbes,** transferred to Edmonton to replace Mr. Alexander. **H. E. Powell,** acting superintendent, Brownville division, Brownville Junction, Me., named superintendent of that division. **J. G. Dow,** acting assistant superintendent, St. John, N. B., appointed assistant superintendent there.

J. C. Eldridge, assistant right of way and lease agent, Prairie region, Winnipeg, Man., promoted to right of way and lease agent of that region, succeeding **Wilfred Humphreys,** who retired September 1.

Whitcomb Haynes
B&M

John E. Rourke
B&M

M. A. Keays appointed acting general superintendent, Saskatchewan district, Moose Jaw, Sask., succeeding **L. R. Smith,** assigned special duties.

CENTRAL OF GEORGIA.—O. D. Page, superintendent, Savannah division, Savannah, Ga., appointed assistant to general manager there, succeeding **R. A. Brimm,** retired. **H. L. Bishop, Jr.,** assistant superintendent, Columbus division, Cedartown, Ga., succeeds Mr. Page. **J. E. Smith** named trainmaster, Columbus division, Cedartown.

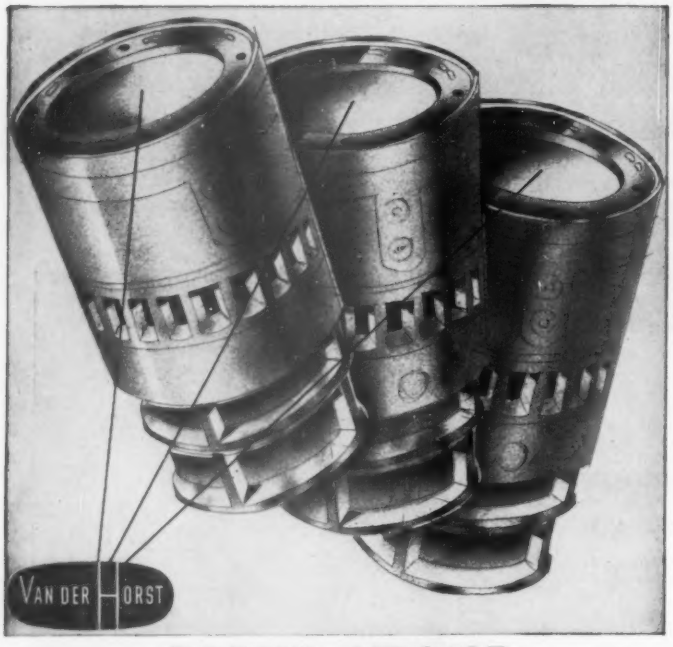
James R. Beach, general storekeeper, Macon, Ga., appointed purchasing agent, Savannah, succeeding the late **C.A.G. Blomquist. Marshall L. Morgan,** chief clerk, purchasing department, named assistant purchasing agent.

CHESAPEAKE & OHIO.—J. L. Quarles, superintendent of stores, Cleveland, retired August 31 and that title abolished. **B. A. Cumbea,** assistant superintendent stores, Huntington, appointed manager of stores, Cleveland. **J. D. McGann,** assistant to superintendent of stores, Huntington, named assistant manager of stores-methods, at that point. **F. G. Hawes,** general storekeeper-Eastern and Central regions, appointed general storekeeper-system, headquarters as before at Huntington. **W. C. Wilson,** general storekeeper, Northern region, Grand Rapids, Mich., named assistant manager of stores there. **E. R. Kegelmeyer,** assistant general storekeeper, Huntington, appointed regional general storekeeper there, territory Huntington general store and west, except Northern region. **C. S. Wetherholt,** district storekeeper, Richmond, Va., named regional general storekeeper there, territory east of Huntington. **J. A. Bawsel,** district storekeeper, Grand Rapids, appointed regional general storekeeper there, Northern region. **A. J. Sowatsky,** assistant general storekeeper, Grand Rapids, becomes assistant regional general storekeeper there. **R. R. Reynolds,** assistant to general storekeepers, Huntington, named assistant general storekeeper-system—standards at that point. **A. H. Young, Jr.,** district storekeeper, Huntington, appointed assistant regional general storekeeper there. **C. R. Burner,** assistant to general storekeeper, Huntington, named assistant regional general storekeeper there, in charge of Huntington general store. All former positions of above abolished. **G. P. Surber,** division storekeeper, Russell, Ky., appointed assistant regional general storekeeper there. Territory of **R. E. Hamilton,** supervisor of reclamation, Huntington, extended to cover entire system.

A. B. Ray appointed general car foreman, Parsons, Ohio, succeeding **S. M. Ehrman,** promoted to assistant to general superintendent, car department, Richmond (Railway Age, Aug. 19, p. 48).

CHICAGO GREAT WESTERN.—Effective September 1, **G. T. Scott,** vice-president, comptroller and secretary, Oelwein, Iowa, relieved of his duties as comptroller, at his own request, and **L. O. Grashoff** appointed comptroller. Mr. Scott will continue to serve as vice-president and secretary.

5 *big advantages of*



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CHICAGO NORTH SHORE & MILWAUKEE.—D. L. Smith, vice-president, elected president, to succeed **J. H. M. Clinch,** resigned.

DEPARTMENT OF COMMERCE.—Paul F. Royster, former assistant to the undersecretary of commerce for transportation, and for 30 years an employee of the Monon, has been named assistant commissioner for operations, Bureau of Public Roads, while continuing as assistant to the federal highway administrator.

GULF, COLORADO & SANTA FE.—F. O. Koopmann appointed right of way agent, Galveston, Tex., succeeding **W. Y. Ware,** construction engineer and right of way agent, retired.

HANNIBAL CONNECTING.—Henry W. Leap, assistant secretary, Hannibal, Mo., appointed superintendent and assistant secretary. **Robert L. Ruch** named assistant superintendent.

LEHIGH VALLEY.—John M. Berry, district freight agent, Milwaukee, Wis., appointed assistant western freight traffic manager, Chicago, succeeding **Thomas C. Richardson,** named assistant freight traffic manager, Bethlehem, Pa., replacing the late **Alvin J. Whitney.**

MILITARY TRAFFIC MANAGEMENT AGENCY.—Gilmer B. Randolph appointed executive officer; **John E. Roberts, Jr.,** named deputy director of services and **James J. Gianfagna** will serve as deputy director of traffic. Mr. Randolph was formerly deputy assistant chief of transportation (traffic), Department of the Army. Mr. Roberts served as a key transportation and budget specialist in the Navy's Bureau of Supplies and Accounts. Mr. Gianfagna was senior civilian traffic manager of the Navy's Bureau of Supplies and Accounts.

MILWAUKEE.—L. R. Gates, traveling freight and passenger agent, Eugene, Ore., appointed district freight and passenger agent, Medford, Ore., effective October 1.

MINNEAPOLIS & ST. LOUIS.—J. L. Clancy, agent, New Prague, Minn., promoted to assistant superintendent of transportation, Minneapolis.

MISSOURI-KANSAS-TEXAS.—Don E. Lottes. chief clerk, vice-president's office, named assistant to vice-president—sales and service, St. Louis.

MISSOURI PACIFIC.—C. R. Barnes, Jr., assistant trainmaster, McGehee, Ark., appointed trainmaster there, succeeding **J. M. Toler,** promoted (Railway Age, Sept. 2, p. 42).

Clarence S. Chance appointed general agent, Winston-Salem, N. C., succeeding **Elmo E. Hunt,** promoted.

NORFOLK SOUTHERN.—Robert L. Howard, division freight agent, Charlotte, N. C., appointed general industrial agent, Raleigh, N. C.

NORFOLK & WESTERN.—Charles E. Lex, Jr., assistant tax commissioner, Roanoke, Va., promoted to tax commissioner there, succeeding **9. H. Barnhart,** retired.

ROSCOE, SNYDER & PACIFIC.—Don Wooten, president and general manager, elected chairman of board, Abilene, Tex. **William L. Bailey,** executive vice-president elected president, Abilene. **E. G. Stafford, Jr.,** vice-president and assistant general manager, Roscoe, Tex., elected vice-president there.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS. —Robert C. Ely appointed general attorney.

TEXAS & PACIFIC.—W. J. Savage appointed chief engineer, Dallas, Tex., to succeed **R. J. Gammie,** who retires September 30.

OBITUARY

C.A.G. Bloomquist, 66, purchasing agent, **Central of Georgia,** Savannah, died September 3.

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They coil above the opening! Whether opened, closed, or in action, Kinnear Rolling Doors waste no usable space anywhere.

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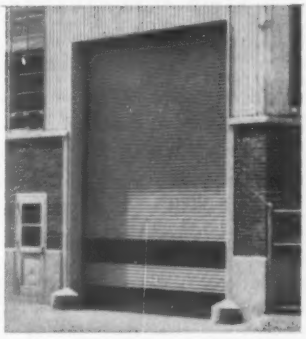
Extra-heavy galvanizing! 1.25 ounces of pure zinc per square foot of metal, ASTM Standards, give the Kinnear curtain highest resistance to corrosion.

Built to fit any opening, with motor or manual control, Kinnear Rolling Doors assure the right answer to your needs. Write today for details!



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. . . and now, new active material gives the world's longest lived battery even greater durability and service life.

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Today, EDISON storage batteries offer *even greater* durability, and longer life through the use of a new active material. Developed by Edison research to meet the increasing demand of today's lighting, air-conditioning, and communications systems, this new material—on long-term test—has shown it can provide new durability and economy under the full range of passenger car and caboose operating conditions.

For information on EDISON storage batteries, contact your local Edison representative or write Edison Storage Battery Division, Thomas A. Edison Industries, West Orange, N. J. In Canada: International Equipment Co., Ltd., 90 Bates Road, Montreal, P. Q.

Railroads depend on Edison batteries for five important power services —operating power on industrial trucks • stand-by power for communications equipment on caboose cars • stand-by power for air conditioning and lighting on passenger train cars • stand-by power for all types of railway signaling • multiple unit controls.

Edison *NICKEL—IRON —ALKALINE* **Storage Batteries**

. . . a product of Thomas A. Edison Industries of McGRAW EDISON

Supply Trade

The **Epoxy Coil Corporation,** 11510 South Alameda street, Los Angeles 59, Cal., has been organized to manufacture and supply a new type of traction motor field and armature insulation which has shown promising results in service tests over the last two years. Both new Epoxylite molded coils and maintenance kits, developed to repair vibration-damaged coils without rewinding, will be distributed through the **Transcrip Corporation,** Chicago. Officers of the new company include: president, **S. J. Rejda;** vice-presidents, Dr. **Henry Lee** (engineering), **George Larsen** and **R. H. Gurley;** and secretary-treasurer, **William Hogue.**

Inland Steel Company has announced a multi-million dollar expansion program which will double its output of wide flange beams. **Joseph L. Block,** Inland president, said the authorized program, scheduled for completion in 1959, will increase capacity for this type beam to 54,000 tons a month. When the new beam capacity is installed, Inland will discontinue manufacture of steel rails.

James E. McNamara, vice-president, **Journal Box Servicing Corporation,** has been elected president, succeeding **Leo C. McNamara,** now board chairman and chief executive officer, who organized the company 30 years ago.

Richard Relf, Cleveland district manager of **Gould-National Batteries, Inc.,** has been appointed Detroit regional sales manager of the industrial division.

W. D. Anderson, operating manager of **Graybar Electic Company** at Springfield, Mo., has been transferred in the same capacity to Corpus Christi, Tex. **W. B. McGhee, Jr.,** office manager of the headquarters office, at Pittsburgh, of the major appliance division, has been appointed operating manager at Jackson, Miss.

Fred E. Everett has been named manager of **Westinghouse Electric Corporation's** marine and transportation section, East Pittsburgh, Pa., with responsibility for coordinating sales of Westinghouse products to these industries. He has been assistant manager of the marine department in Washington.

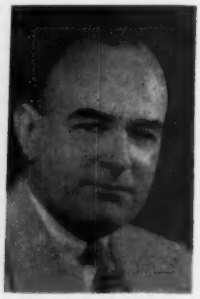
Donald F. Miersch has joined **American Pamcor, Inc.,** as general sales manager. He was formerly consultant on marketing for **Avco Manufacturing Corporation.**

Dr. W. Kenneth Bock, manager of metallurgical research for **National Malleable & Steel Castings Co.,** has been appointed director of research, succeeding the late **Harold Johnson.**

Maurice E. Costello, sales representative of **McConway & Torley Corp.,** has been appointed district sales manager, with headquarters at Pittsburgh as before.

C. Robert Weaver, Los Angeles plant manager for **Magnus Metal Corporation,** has been named western sales representative, succeeding the late **Emmet J. Cole.** His headquarters will remain in Los Angeles.

Leo C. McNamara



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Equipment used or resale acceptable in this section

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But the telephone and electric power industries prosper under regulation, while the railroads suffer from chronic financial anemia.

It can't very well be, therefore, that it is regulation per se that keeps the railroads poor. Can it be, then, that the utilities are realistically and ably regulated while the railroads are not?

There is certainly ample evidence to support such a conclusion. But that is not the same thing as saying that the state regulatory commissions, which regulate the electric utilities, are more able and more energetic than the ICC.

Instead, maybe the state commissions which regulate the utilities are operating under a rate-making policy (or theory) which fits the facts of the utility business—whereas the ICC may be operating under a policy (or theory) that no longer fits the facts of present-day railroading.

The electric utilities produce only one product—kilowatt-hours. At one time they made an effort to charge according to "value of service." That is, they sought to charge more for the kilowatt-hours used for electric lighting than those used to heat a curling iron. But they eventually gave up trying to figure out the "ability to pay" of different users of their product. Instead, they now pay little attention to what their product is going to be used for. They "classify" their customers only on the basis of the relative expense of serving them.

•

The utility regulators have accepted the policy that it is not "discrimination" to charge a customer who can be served economically less than a customer who is costly to serve. And the utility companies are not prevented from reducing their rates, lest "isolated plants" be removed from competition. The utilities are not being regulated with the end in view of keeping high-cost producers in business, as the railroads are.

The economic characteristics of the railroads are, of course, not exactly parallel to those of the utilities, but there are many similarities. Railroad freight service does not consist of one simple product, such as kilowatt-hours. But there is certainly not as much difference between one ton-mile and another ton-mile as the railroad rate structure indicates.

The kinds of ton-miles the railroads *produce*—in contrast to the ton-miles the railroads *sell*—could be divided into relatively few classes. There is a low-cost ton-mile (sand or coal or ore). There is a high-cost one (e.g., lettuce under refrigeration). In between such extremes, a few gradations would encompass all the freight service the railroads produce.

But by tradition and regulatory prescription, the half-dozen or so kinds of ton-miles the railroads produce are multiplied into millions of different rates. And the ICC attempts to keep all the parts of that complex structure in neat balance—at a time when private transportation by truck or barge has got the power of veto.

NO ALTERNATIVE: Traditions in the way of "market relationships" are realities—just as much as the cost of physical movement of freight. Such tradition is not going to be discarded overnight. But the transition away from too much emphasis on vanished "value of service" cannot be delayed forever, either, if the railroads are to remain in private ownership. The ICC must modify its policy—its theory—in regulating rates to accord with present-day facts; but the initiative in mobilizing the facts and giving them professionally competent economic and legal interpretation lies mainly with the railroads. Today is a time in the railroad business when it is highly practical to be theoretical.

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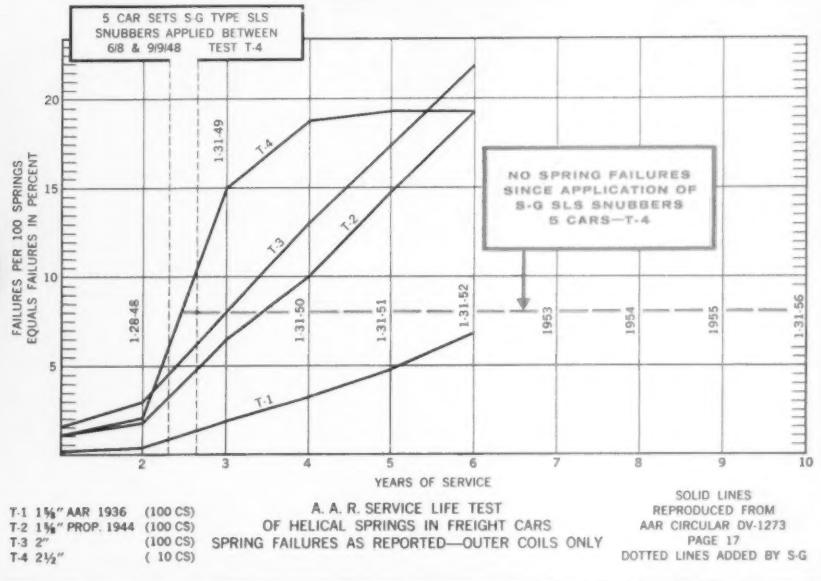

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